

**Brio Site Task Force
2501 Dixie Farm Road
Houston, Texas 77089**

MAINTENANCE, OPERATIONS, AND MONITORING PLAN

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Rev. 1 - 12/04 - App. C- Secondary Containment Fluid Handling Procedure SOP-10

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- D NSCZ Groundwater Recovery Well, DNAPL Recovery Well, and Piezometer Construction Reports
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1.0 INTRODUCTION

This Post Closure Maintenance, Operation, and Monitoring Plan (MOM) describes the Brio Site monitoring, inspection, maintenance, and operations activities following closure of the site.

1.1 SITE LOCATION AND HYDROGEOLOGIC DESCRIPTION

The Brio Superfund Site is located in Harris County, Texas, approximately 20 miles southeast of Houston, Texas. The site is approximately 1.5 miles southwest of Interstate Highway 45 South (Gulf Freeway) at the Dixie Farm Road exit. The site is located on both the north (Brio North) and south (Brio South) sides of Dixie Farm Road.

Brio North, approximately 48.8 acres, is bounded on the southwest by a Harris County flood control ditch known as Mud Gully, on the northwest by the former Southbend subdivision, on the northeast by Beamer Road, and on the Southeast by Dixie Farm Road. Brio North is located in Harris County, outside of any municipality.

Brio South, approximately 9.3 acres, is bounded on the southwest by Dixie Oil Processors (DOP) site, on the northwest by Dixie Farm Road, and on the northeast and southeast sides by open land.

Portions of the Brio Site processing equipment were dismantled and removed in 1989. The remaining process equipment and most of the office-type maintenance buildings were removed in the period of 1992 to 1994, and the last remaining tank on Brio North was removed in 1998. The stormwater management system (API separator and the North and South Impoundments) were removed in 2000 to 2001 in preparation for the final remedy.

Geologic conditions beneath the site consist of the following:

- A 12 to 20 foot thick clay layer termed the Upper Clay Unit (UCU).
- A 15 to 25 foot layer of alternating silt, sand, and clay beds with random sand channels braided within. The layer is termed the Numerous Sand Channel Zone (NSCZ), and contains affected groundwater.
- A confining clay layer rests below the NSCZ and is termed the Middle Clay Unit (MCU). The layer is approximately eight to 20 feet thick and is the hydraulic barrier between the affected NSCZ and underlying groundwater zones.
- The second groundwater zone is termed the Fifty Foot Sand Zone (FFSZ). It is approximately 50 feet below the ground surface.

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1.2 REMEDY COMPONENT DESCRIPTION

The Brio Site remedy consists of:

- Vertical Barrier Wall - A sub-grade barrier wall constructed to limit the potential for off-site migration of affected groundwater in the NSCZ. The wall is constructed of soil-bentonite slurry and sheet pile, and is keyed into the MCU. The sheet pile portion of the barrier wall includes a cofferdam that encompasses a portion of Mud Gully near Pit B.
- Site Cover – The site cover consists of a composite cover extending to the limits of the barrier wall. The cover includes a gas collection layer, a flexible membrane liner, compacted clay, and vegetation to limit erosion.
- Groundwater Gradient Control - A groundwater recovery system in the NSCZ creates an inward gradient control by pumping the NSCZ groundwater to the surface where it is stored and treated.
- Groundwater Treatment Plant (WTP) - The WTP treats recovered groundwater. Water that passes the USEPA treated water criteria is discharged to Mud Gully.
- Dense Non-aqueous Phase Liquid (DNAPL) Recovery System – The DNAPL recovery system collects DNAPL from the Pit J area. The recovered DNAPL is stored and then shipped off-site for disposal.

1.3 POST-CLOSURE ACTIVITIES

Post-closure activities consist of active monitoring, groundwater/ DNAPL/ recovery/ treatment/ disposal operations, inspection, and maintenance of the constructed remedy. An Annual Effectiveness Report (AER) will be submitted annually to document the performance of the remedy.

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2.0 INSPECTION

2.1 INSPECTION OVERVIEW/SCHEDULE

Post closure inspection activities for the Brio Site provide the continued effectiveness of site security, and site containment and isolation measures. Table 1-Brio Site Master Schedule presents the inspection activities and frequencies.

2.2 SITE FACILITY AND SAFETY INSPECTIONS

Inspection of the site is based on a visual inspection by walking the site, including the perimeter of the earthen cover and vertical barrier wall, in such a manner that the deficiencies can be identified. The following sections contain specific elements that will be inspected.

The site will be inspected for potential health and safety hazards. The site safety inspection standard operating procedure is contained in the Worker Health and Safety Plan.

2.2.1 Onsite Access Roads, Gates, Fences, and Signs

Onsite roads will be inspected for erosion, deterioration, and excessive overgrowth. Note and report any overgrowth or excessive deterioration to site management.

Site perimeter fencing is used to maintain site security. All perimeter fencing will be inspected for evidence of deterioration or damage. The site fence along Mud Gully will also be inspected after rainfall events that cause Mud Gully water levels to reach the fence line. Any breach discovered will be repaired or mended with temporary fencing materials as soon as practicable. Deteriorated fencing will be repaired or replaced in a timely manner in order to avoid further fence deterioration or damage.

Gates will be inspected for deterioration or damage and repaired or temporarily mended as soon as practicable. Deteriorated gates will be repaired or replaced in a timely manner in order to avoid further deterioration or damage. Locks will be inspected to ensure proper operation. Evidence of tampering, forced entry, or deterioration will be reported to site management. See Figure 1 for the location of gates.

Signs have been placed on gates and perimeter fencing at a spacing of no greater than 150 feet. These signs read as follows:

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NO TRESPASSING. RESTRICTED ACCESS.

NO TRASPASAR. NO ENTRADA.

Inspectors will check for missing, unreadable, vandalized, obstructed (by vegetation) or damaged signs. Signs will be repaired or replaced if these conditions are found.

2.2.2 Cover

A site wide cover system has been constructed over the Brio Site. See Figure 3 for the location and configuration of the cover. The cover system will be inspected during the groundwater and DNAPL recovery and treatment inspections. Inspectors will report to site management any evidence of damage by vehicular traffic, soil erosion, gullies, cracks, burrowing animals, or slope failures. The cover will also be inspected for localized settlement, ponding, distressed vegetation, and poor drainage. The cover design is presented in Figure 7.

2.2.3 Site Drainage And Erosion Control

The drainage patterns for the Brio North and Brio South cover systems are shown in Figure 3. Ditches, roads between cover compartments, swales, and other drainage features will be inspected for the ability to deliver runoff to the ditches and detention basins shown in Figure 3. The detention basins on Brio North and Brio South will be inspected for excessive erosion, obstructed drainpipes, and excessive trash.

2.2.4 Barrier Wall

A vertical barrier wall system was constructed on Brio North and Brio South to isolate the affected NSCZ groundwater and DNAPL from discharging into Mud Gully. The upper surface of the barrier wall is located under the cover system and is therefore not visible for inspection; however, the barrier wall alignment will be visually inspected for penetrations by new utilities or other penetrations. Figure 3 shows the alignment of the barrier wall.

2.2.5 Groundwater/DNAPL Recovery and Treatment System

2.2.5.1 Water Treatment Plant - The water treatment plant (WTP) operating instructions manual is incorporated by reference. The WTP is expected to remain active during the post closure period. Inspection procedures contained in the manual will be conducted.

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2.2.5.2 Groundwater Collection Hub Facilities - Cover compartments B, C, and D each have a Hub Facility to separate free phase organics from groundwater prior to transfer to the water treatment plant. Compartment A is piped to the Compartment C system where water from both compartments is combined prior to separation. Figure 2 shows the location of each hub and the approximate location of the recovery system piping.

Inspections of the hub facilities include the condition of the hub building, tanks, air compressor, nitrogen system, gauges and level sensors, and piping.

2.2.5.3 Safety Relief Devices - The pressure relief devices in use at the Brio Site are safety devices that do not contain instrumentation and do not require external operators. It is necessary to establish an active program for inspection and maintenance to demonstrate that they will operate when called upon in emergency situations.

Safety relief devices will be inspected annually to document operational readiness as required by OSHA 29 CFR 1910 and API Recommended Practice 510 and 576. A qualified company will perform these inspections.

2.2.5.4 Underground Utilities - Utilities servicing the groundwater and DNAPL recovery systems are buried underground. The utility corridor will be inspected for leaks and settlement.

2.2.5.5 Wells and Piezometers - NSCZ recovery wells located on the Brio Site (see Figure 2) will be inspected for the condition of the protective casing, the concrete base, protective posts (painted yellow if any), pumps, and discharge plumbing. Inspectors will report any evidence of leaks, soil erosion, tampering, or damage.

NSCZ piezometers located on the Brio Site (see Figure 2) will be inspected for the condition of the well heads and subsurface vaults.

The FFSZ monitoring wells located on the Brio site (see Figure 2) will be inspected for the condition of the protective casing, the concrete base, protective posts (painted yellow if any), cap, and lock. Inspectors will report any evidence of erosion, tampering, or damaged, missing, or inoperative locks to management.

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2.2.6 Gas Recovery and Collection System

Inspection of the cover gas venting and collection system generally consists of evaluating each compartment for VOC emissions for the first year of operation and inspecting the piping, blower, and carbon canister system for proper operation and absence of leaks.

The compartments that pass the USEPA criteria for the first year will be passively vented through carbon canisters. Each compartment's piping and canisters will be inspected for visible leaks, corrosion, and blockages. Figure 3 presents the locations of the gas collection vents.

2.2.7 Mud Gully

Improved sections of Mud Gully extend from 1100 feet north of Dixie Farm Road to Dixie Farm road (refer to Figure 3). This section will be inspected for slope failure, excessive debris, or anything that could impede flow in the channel. Harris County Flood Control will be notified of conditions that could impede channel flow.

The NSCZ wells and associated utilities located within the cofferdam (refer to Figure 2) will be inspected for damage.

2.3 REPORTING ACTIVITIES

The inspection checklists will be completed during the inspection activity (Appendix A) noting any significant items of concern. The BSTF will review the findings and take corrective action as necessary.

The inspection reports and pressure safety relief device inspection documents will be maintained onsite. A summary of the inspections will be included in the Annual Effectiveness Report.

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3.0 MAINTENANCE OVERVIEW/SCHEDULE

Routine maintenance activities are discussed in the following sections. Non-routine maintenance activities will be conducted on an as-needed basis. Table 1-Brio Site Master Schedule presents the maintenance activities and frequencies.

3.1 SITE MAINTENANCE

3.1.1 Site Perimeter Maintenance

A site-wide perimeter fence provides site security.

Fences are six feet tall and topped with three strands of barbed wire overhanging outwards. Lockable gates are located at each point of entry to the site. Rusted portions of the fence or gate will be repaired or replaced as necessary. Small tears in the chain link fabric can be repaired or replaced by wire splicing. Broken wire, larger tears and missing sections of chain link fabric will be replaced in fence panel lengths. Poles and top bars which are misaligned or in poor condition will be straightened or replaced. Cross braces will be tightened as necessary to keep gates plumb and square.

Gate hinges and all gate and monitoring well locks will be lubricated. Torn or damaged access gates, gate hinges, and fencing will be repaired or replaced as necessary for site security. Repair or replace any missing or damaged locks.

Signs are placed on gates and perimeter fencing at a spacing of no more than 150 feet. Damaged, deteriorated, faded, unusable, and missing signs around the site will be repaired or replaced as needed.

Brush, trees, and woody plants and vines will be removed within the site fence line. An interior five-foot perimeter strip adjacent to the fence line will be mowed.

3.1.2 Onsite Access Roads

Continued maintenance of the onsite access roads is necessary for access to various areas of the site. Repair options for the access roads will be determined at the time of repair.

3.1.3 Cover

To maintain the integrity, slope, and thickness of the cover system, soil will be added or replaced as necessary. Cracking of the surface soil is expected and is not considered to be a

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defective cover. Site-wide vegetation will only be mowed as special conditions warrant.

The geosynthetic layers will be repaired if damaged. The cover design is presented in Figure 7.

Obstructions or debris that would impede water flow will be removed from the drainage swales and discharge structures. Plant detritus will be cleared from drainage structures. Blockage from ditches, drain pipes, gullies, and weirs will be cleared as needed.

3.1.4 Barrier Wall

The upper surface of the barrier wall is located under the cover system and is therefore not visible for inspection. Should an extraordinary event occur that damages the integrity of the barrier wall, then the damage will be repaired.

3.1.5 Groundwater/DNAPL Recovery and Treatment System

3.1.5.1 Water Treatment Plant - WTP maintenance is specified in the WTP operating instructions manual.

3.1.5.2 Groundwater Collection Hub Facilities - Groundwater hub facility components will be maintained according to manufacturer's recommendations for pumps, tanks, compressors, regulators, sensors, piping, and other components. The groundwater hub facility as-built design and procedures are specified in the WTP operating instructions manual.

Non-routine maintenance of groundwater and DNAPL recovery systems will be performed on an as-needed basis according to manufacturer's recommendations. Deteriorated or damaged recovery system piping will be replaced as needed.

3.1.5.3 Maintenance of Safety Relief Devices-Safety relief devices will be maintained according to manufacturer's specifications. A qualified individual will perform the maintenance.

3.1.5.4 Underground Utilities - Utilities servicing the groundwater and DNAPL recovery system are buried underground. Settlement along the route of these utilities will be re-leveled with suitable soil. If a leak is detected, the leak will be mitigated. Soil that is exposed to affected material will be removed and disposed offsite. Clean soil will replace the removed soil in a manner that is consistent with the construction compaction and shape.

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The underground utility as-builts are contained by reference in the WTP operating instructions manual.

- 3.1.5.5 Wells and Piezometers - Maintenance of NSCZ recovery wells, NSCZ piezometers, and FFSZ monitoring wells may include repair or replacement of damaged protective casings, replacing missing locks, and repair or replacement of removed, destroyed, or severely damaged protective posts. If the monitoring well becomes nonfunctional, the well will be reconditioned. If the monitoring well cannot be reconditioned or is damaged beyond repair, then the monitoring well will be replaced. Plans for reconditioning or replacement will be developed on an as-needed basis. The USEPA will be notified of the BSTF's proposed well replacement plan.

Pumps, instrumentation and piping will be maintained according to the manufacturer's recommendations.

As-built records for the pumping equipment and utilities are contained by reference in the WTP operating instructions manual.

As-built records for each NSCZ groundwater recovery well, DNAPL recovery well, and piezometer are contained in Appendix D.

The FFSZ groundwater monitoring well construction reports are contained in Appendix E.

3.1.6 Gas Recovery and Collection System

A gas collection system was installed as part of the cover construction. Refer to Figure 3 for the location of the four gas collection compartments and vents. The concrete pads surrounding the vents will be repaired as necessary. Maintenance of the venting system may include repair or replacement of the vent pipe, adding additional soil due to erosion, and repairing the geosynthetic liner.

- 3.1.6.1 Year One - Section 4.3 explains the operation of the gas collection system. The operation of the gas collection system is divided into short-term and long-term operation. The short-term operation will be performed during the first year. This consists of an active recovery system connected to each gas collection compartment that applies a low vacuum on the system. The air exiting the gas collection system passes through at least two carbon canisters before being exhausted to the

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atmosphere. Piping, hoses, gauges, and carbon canisters will be replaced or repaired upon signs of visible deterioration or malfunction.

3.1.6.2 Post Year One - The long-term operation of the gas collection system consists of two carbon canisters in series with the exhaust port of the last canister open to atmosphere. Piping, hoses, gauges, and carbon canisters will be replaced or repaired upon signs of visible deterioration or malfunction. The long-term gas collection equipment design is presented in Figure 8.

3.1.7 Mud Gully

Harris County Flood Control District (HCFCD) is responsible for maintenance of Mud Gully. HCFCD will be notified for areas needing repair as identified during inspection activities in Section 2.2.7.

The NSCZ wells along Mud Gully will be maintained per Section 3.1.5.5.

3.1.8 Preventive Maintenance for Safety Equipment

Safety equipment used at the Brio Site will be maintained meet federal and state OSHA regulations. The maintenance procedure is contained in the Worker Health and Safety Plan.

3.2 REPORTING ACTIVITIES

The site maintenance checklist (see Appendix B) will be completed as maintenance items are accomplished. All maintenance reports and checklists will be maintained in the project files.

A summary of maintenance activities will be included in the Annual Effectiveness Report.

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4.0 OPERATIONS

4.1 GROUNDWATER RECOVERY AND TREATMENT SYSTEM

The purpose of NSCZ groundwater recovery at the Brio Site is to contain plume migration by providing an inward groundwater gradient. The perimeter barrier wall provides additional plume containment in the event of temporary groundwater recovery shutdown.

The leading front of a plume on Brio-South is outside of the barrier wall because of the location of a major pipeline corridor. Active treatment of groundwater in this area will consist of operating two groundwater recovery wells during normal working hours. A groundwater discharge pipeline is connected to the Brio-South Hub Facility located on Compartment D as described in Section 4.1.1.2 below. Section 5.3.2.1 describes the monitoring activities of this plume.

Recovered groundwater is treated at an onsite water treatment plant (WTP) to meet USEPA approved discharge standards and is then batch discharged to Mud Gully. This plan describes batch processing. The Consent Decree allows for discharge into Mud Gully to be continuous or batch (SOW Table 2-5).

4.1.1 Description and Operation of System Components

4.1.1.1 Recovery Wells and Piezometers - Groundwater recovery wells will be pumped at a frequency and rate to maintain an inward gradient. Piezometers will be used to monitor inward gradient (refer to Section 5.3.1).

4.1.1.2 Compartment A - Compartment A contains two NSCZ groundwater recovery wells. These wells are piped into the Compartment C NSCZ groundwater recovery system as presented in Figure 2.

4.1.1.3 Compartment B - Compartment B contains five NSCZ groundwater recovery wells and 13 DNAPL recovery wells as presented in Figure 2. The NSCZ groundwater is pumped to Hub Facility B where it is processed through a LNAPL/DNAPL/water separator. The separator has a nitrogen sweep that is vented to the WTP vapor treatment system. The water from the separator is pumped to the WTP for treatment. The LNAPL and DNAPL are combined and pumped to the DNAPL storage tank in the WTP Facility where it is stored until shipment offsite for disposal.

4.1.1.4 Compartment C - Compartment C contains five NSCZ groundwater recovery wells as presented in Figure 2. Compartment C also receives water from Compartment A,

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Compartment D, and the South Plume. The NSCZ groundwater is pumped to Hub Facility C where it is processed through a LNAPL/DNAPL/water separator. The separator has a nitrogen blanket that is vented to the WTP vapor treatment system. The water from the separator is pumped to the WTP for treatment. LNAPL and DNAPL are combined and pumped to the DNAPL storage tank in the WTP area where the fluids are stored until being shipped to an offsite facility for disposal.

4.1.1.5 Compartment D - Compartment D contains three NSCZ groundwater recovery wells. Two wells located in the NSCZ groundwater plume that extends beyond the barrier wall on Brio-South are piped to the Compartment D groundwater recovery system. Figure 2 presents the locations of the Compartment D and South Plume wells. The combined groundwater from Compartment D and the South Plume are pumped to the Hub C Facility on Brio-North where it is combined with the groundwater from Compartment A and Compartment C.

4.1.1.6 The Water Treatment Plant Facility - The WTP facility treats water recovered from the NSCZ wells and rain/wash water from the sumps in the WTP facility. Water is stored in tank T-212A prior to treatment. The water from T-212A is pumped to an air stripper where the volatile organic compounds (VOCs) are removed.

The vapor phase stream from the air stripper is sent through the resin based extraction unit (PURUS) where the VOCs are removed from the air stream and then condensed and stored in the DNAPL tank T-218. Alternately, the VOC vapor phase stream can be routed to a carbon and potassium permanganate scrubber where the VOCs are adsorbed or oxidized.

The water phase stream is piped to two aqueous phase carbon vessels that are connected in series where the semivolatile organic compounds (SVOCs) and remaining VOCs are adsorbed.

The effluent from the aqueous phase carbon vessels is piped to one of three holding tanks (T-213A, T-213B, or T-213 C). Treated water is held in these tanks until it is sampled, tested, and passes the Brio Site discharge criteria.

4.1.2 Treated Water Sampling, Analytical Testing, and Discharge

4.1.2.1 Treated Water Sampling - Water sampling includes taking an eight point composite sample from one of three treated water holding tanks. Refer to the Sampling and Analysis/QAQC Plan in Appendix C for treated water sampling procedures.

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4.1.2.2 Treated Water Discharge Criteria and Approval Process - Table 2 presents the list of required testing parameters and the discharge criteria. Treated water that passes the discharge criteria can be discharged to Mud Gully. A record for each batch discharge will be maintained in the site file. The discharge record consists of the analytical results reported in the Brio-specific format shown in Figure 4 and the WTP Discharge Form shown in Figure 5.

4.1.2.3 Schedule - Table 1-Brio Site Master Schedule presents the treated water discharge schedule.

4.1.2.4 Reporting - A summary of treated water analytical results and discharge information will be submitted to the USEPA in the Annual Effectiveness Report per Table 1.

4.2 DNAPL RECOVERY SYSTEM

4.2.1 DNAPL Recovery System Overview

An initial DNAPL Recovery Baseline Evaluation Study will be conducted following post closure as outlined in Section 5.4.

Thirteen DNAPL recovery wells plus six groundwater recovery wells located around Pit J are used to recover DNAPL during normal site work hours. Pumping from the DNAPL recovery wells will be adjusted to establish an optimal pumping rate and schedule (see Section 5.4.2) at Hub Facility B. DNAPL and groundwater are separated and the DNAPL will be pumped to tank T-218 located at the WTP facility. DNAPL will be shipped to an offsite disposal facility. Appendix G presents the DNAPL shipping procedures and forms.

The DNAPL Recovery Program Field Change Order 18 is contained in Appendix F.

4.2.2 DNAPL and Pit J Groundwater Recovery Wells

The locations of the 13 DNAPL wells and six groundwater recovery wells can be found in Figure 2. The well construction reports are presented in Appendix D.

4.2.3 DNAPL Disposal Volume

The amount of DNAPL collected and disposed of is measured at both Tank T-218 and from the disposal facility records.

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4.2.4 Reporting

A record will be maintained onsite that documents DNAPL collection and disposal volumes. A summary of DNAPL collection and disposal will be submitted to the USEPA in the Annual Effectiveness Report per Table 1.

Each DNAPL shipment will be reported to the Texas Commission on Environmental Quality (TCEQ) per State regulations. Appendix G presents the DNAPL reporting procedure and shipping forms.

4.2.5 Schedule

Table 1-Brio Site Master Schedule presents the DNAPL disposal and reporting frequency.

4.3 COVER COMPARTMENT GAS COLLECTION

4.3.1 Cover Compartment Gas Collection Overview

The cover is divided into compartments, based on water runoff considerations and the relationship to former pit areas (refer to Figure 3). The cover installed over each compartment has a gas collection layer, a surface vent, and gas collection system. The vent system will be vacuum assisted during the First Year Baseline Testing Program and may be closed off after the first year based on test results.

4.3.2 Pre-operations Pilot Study and Gas Collection System Design

The objectives of the pre-operations pilot study are as follows:

1. To identify the type of equipment necessary to perform the First Year Baseline Testing Program
2. To develop the operating procedures to perform the First Year Baseline Testing Program
3. To develop the VOC loading calculations used to compare the actual loading to the established criteria located in Section 4.3.3.
4. To develop the closed vent maximum pressure criteria (or alternative).
5. Prepare a draft and final gas collection system design report (see Section 4.3.5)

Each compartment will undergo the pilot study prior to beginning the First Year Baseline Testing Program. Each compartment can be tested individually or concurrently. The pilot

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study will conclude within the first three months of post-closure. The draft and final gas treatment system design reports will be submitted to the USEPA for approval.

4.3.3 First Year Baseline Testing Program

Once the final gas treatment system design is approved by the USEPA, the First Year Baseline Testing Program can begin.

The vent system will be manifolded to a treatment system(s). The treatment system(s) will, at a minimum, consist of two carbon units in series. The airflow between the two carbon units will be monitored, initially daily. Breakthrough is defined as a reading of 50 ppm VOCs, in which case the spent carbon unit will be replaced by a fresh unit within 12 hours. After startup, the monitoring frequency between the two carbon units will be adjusted to a time period of no greater than one tenth (1/10) the expected carbon life.

An initial baseline monitoring of total VOC production on a compartment by compartment basis will be carried out once the system is operational. The baseline monitoring consists of one sample and flow measurement per month of VOCs, per compartment, for a minimum of 12 consecutive months. The amounts and types of VOCs recovered will be reported. Prior to any compartment(s) being closed off, 12 months of such data will be presented supporting the closing. (The initial baseline data may be used for this purpose.) Compartments which generate less than 40 pounds per month of total VOCs may be valved off. For those compartments which are valved off, a maximum pressure will be defined during the design to determine when the closed off compartment must be reopened to the treatment system.

If the amount of VOCs in the air flow to the treatment system results in breakthrough of the carbon units occurring more frequently than once (1) every ten (10) days, then a study evaluating the efficiency of the VOC recovery and treatment system will be prepared. This study evaluates: (1) changing the treatment capacity/method, or (2) increasing VOC recovery through installation of vertical wells, whichever optimizes VOC recovery. This study considers value engineering concepts, cost effectiveness, safety, VOC recovery rates, and the short term and long-term potential for creating emissions in the optimization process.

4.3.4 Long-term Monitoring and Collection System

The 12-month baseline investigation demonstrated that the VOC loading from each compartment was less than the 40-pounds per month total VOCs performance standard; therefore, long-term active gas collection is not required. Instead, a passive VOC collection system will be installed. Each compartment vent will be connected to two carbon canisters in series and be allowed to passively vent. Breakthrough of the carbon canisters is defined as a

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reading of 50 ppm total VOCs at the exhaust of either carbon canister, in which case the spent carbon unit will be replaced by a fresh unit within 12 hours. The total VOC readings will be taken weekly using a hand-held instrument.

4.3.5 Reporting

4.3.5.1 Draft Gas Treatment System Design - A draft Gas Treatment System Design will be submitted after completing the pre-operations pilot study.

4.3.5.2 Final Gas Treatment System Design - After receipt of the USEPA's comments on the Draft Design, BSTF will submit a Final Design for USEPA approval. The USEPA's approval of the final design is required before initiating the implementation of the First Year Baseline Testing Program. All Final Design documents will be approved by a Professional Engineer registered in the State of Texas."

Implementation of the First Year Baseline Testing Program will begin following approval of the Final Design by the USEPA.

4.3.5.3 Completion Report – The USEPA will be notified upon completion of First Year Baseline Testing Program. A Completion Report will be prepared which documents the physical construction of the system. The Completion Report will include, as appropriate, data collected during the implementation phase and documentation of compliance with the terms of the QA/QC plan, and a certification from a Professional Engineer registered in the State of Texas that the work has been completed in compliance with the terms of the Gas Treatment System Design.

4.3.5.4 Long-term Reports - The long-term monitoring and collection reporting will be submitted to the USEPA in the Annual Effectiveness Report per Table 1.

4.4 AREAS REGULATED FOR VINYL CHLORIDE

4.4.1 Regulated Areas and Signs

All facilities that contain affected groundwater, DNAPL, or vinyl chloride vapors will be considered regulated areas per 29 CFR 1910.1017 and will be marked with signs that read:

| |
|--|
| CONTAMINATED WITH VINYL CHLORIDE CANCER-SUSPECT AGENT |
|--|

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4.4.2 Reporting

Reports will be made to the OSHA Area Director not later than one month following the establishment of a regulated area. Any change to a regulated area will be reported within 15 days of the change. The reports will contain information required by 29 CFR 1910.1017.

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5.0 MONITORING

5.1 AIR

5.1.1 Routine Air Monitoring

Air quality monitoring will be conducted at active site areas including, but not limited to, roadways, decontamination areas, site construction areas, or release areas (known or suspected spills, leaking pipes or vessels, or odors), and other areas where work activities may present a potential for particulate or volatile emissions. Measurements above background levels for organic vapors or dust will be reported to site management. Tables 3A and 3B present the action levels and required responses for VOC and dust releases. Air monitoring results will be maintained onsite.

A hand held organic vapor meter (OVM) will be used to conduct routine air monitoring for VOCs. The OVM may have a photoionization detector (PID) or flame ionization detector (FID).

A hand held dust monitor will be used to conduct routine air monitoring for dust.

Appendix C presents the routine air monitoring procedures.

5.1.2 Event Based Fence Line Air Monitoring

Site management may authorize fence line monitoring when events onsite occur that cause handheld monitoring results to exceed the criteria listed in Table 3A. In general, the procedure calls for a SUMMA canister to be deployed downwind of the event at the fence line. The SUMMA canister collects air for a 24-hour period. The SUMMA canister will be sent to a laboratory for testing for site constituents. The results will be compared to the Brio Site Fence Line Ambient Air Quality Standards (FLAAQS) shown in Table 3C.

Appendix C presents the event based fence line air monitoring procedure.

5.1.3 Scheduled Fence Line Air Monitoring

The scheduled fence line air monitoring consists of concurrently collecting six 24-hour samples at the site perimeter. Figure 6 shows the locations of the air monitoring sample points. After the sample period is complete, the canisters will be sent to a laboratory to be analyzed for site constituents. Results will be compared to FLAAQS shown in Table 3C. Appendix C presents the scheduled fence line air monitoring procedure.

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5.1.4 Reporting

Routine air monitoring will be summarized in the Annual Effectiveness Report to the USEPA.

Event based fence line air monitoring results will be reported to the USEPA following receipt and validation of laboratory data and will be summarized in the Annual Effectiveness Report (see Section 6).

The USEPA will be notified if any of the scheduled fence line air monitoring results exceed the FLAAQS as soon as the laboratory reports are validated. These results also appear in the Annual Effectiveness Report to the USEPA. If the FLAAQS are not exceeded for a given sampling event, then the results will only be included in the Annual Effectiveness Report to the USEPA.

5.1.5 Schedule

Routine, event based, and scheduled fence line air monitoring is presented in the Brio Site Master Schedule in Table 1.

5.2 SURFACE WATER QUALITY

5.2.1 Surface Water Quality Monitoring Overview

The surface water quality in Mud Gully and Clear Creek represents one measure of the effectiveness of the remedy to contain onsite affected material. Surface water will be sampled at locations defined in Section 5.2.2 and as scheduled in Section 5.2.7.

5.2.2 Sampling Locations and Procedures

Surface water samples will be collected in Mud Gully at sampling locations SW-1, SW-13 and SW-16. A surface water sample will be collected in Clear Creek (SW-21) at approximately 100 yards down stream of the confluence of Mud Gully and Clear Creek. Surface water sampling locations are shown on Figure 3. Surface water sampling procedures are found in Appendix C.

5.2.3 Analytical Testing

Surface water samples will be tested for TCL volatile compounds using USEPA methods

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having detection limits that allow an adequate level of detection at the BSTF Surface Water Quality Goals contained in Section 5.2.4.

5.2.4 Surface Water Performance Standards

Table 4 presents the Mud Gully and Clear Creek Surface Water Performance Standards from the Consent Decree.

5.2.5 BSTF Surface Water Quality Goals

Table 4 presents the BSTF Surface Water Quality Goals. Surface water monitoring results will be compared to these levels only for informational purposes as mentioned in the USEPA 2003 Five-Year Review Report. The Surface Water Performance Standards (see Section 5.2.4) are the sole criteria used for compliance.

5.2.6 Reporting

Surface water quality data will be included in the Annual Effectiveness Report.

If the results of a sample event exceed the BSTF Surface Water Performance Standards (presented in Table 4), a report will be prepared and sent to the USEPA.

All surface water quality reporting will contain the following elements:

- Tabulated post-closure analytical data from each sample location
- A figure showing the sample locations
- A comparison of measured surface water quality to the Surface Water Performance Standards (presented in Table 4) for both Mud Gully and Clear Creek.

5.2.7 Schedule

Table 1 presents the Brio Site Master Schedule for the surface water sampling and reporting frequencies.

5.3 GROUNDWATER

5.3.1 NSCZ Plume Management Within the Barrier Wall

Recovery wells screened in the NSCZ are used to maintain an inward groundwater gradient toward the plumes within the barrier wall. Piezometers have been strategically located for

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the measurement of NSCZ groundwater elevations. Figure 2 shows the location of the recovery wells and piezometers. The Sampling and Analysis Plan and Quality Assurance/Quality Control Plan located in Appendix C presents the field form used to record the groundwater elevation at each of the piezometers.

During the first year of groundwater recovery activities, NSCZ groundwater elevation data will be obtained and used to assess inward gradient patterns. A separate report will be submitted to the USEPA that presents the data, gradient patterns, and a plan for future compliance monitoring.

NSCZ recovery wells may be abandoned if the groundwater quality meets the Consent Decree Groundwater Performance Standards found in Table 5. This plan currently does not include analytical testing of the NSCZ. A separate abandonment plan will be submitted to the USEPA when the BSTF modifies the plan to include analytical testing and the results meet the Groundwater Performance Standards.

5.3.2 NSCZ Plume Management Outside of the Barrier Wall

5.3.2.1 South Plume – The groundwater barrier wall constructed around Brio-South contained most of the groundwater plume and its source material. However, because of the location of a major pipeline corridor, the barrier wall does not encompass the leading front of the plume. This groundwater plume (termed South Plume) moves slowly (approximately 40 feet per year) and ultimately discharges to Mud Gully. Surface water quality in Mud Gully in the immediate area of the plume discharge has not been adversely impacted as defined by the regulatory standards. However, the Consent Decree requires active treatment for any plume having concentrations above the Groundwater Performance Standards (see Table 5).

Active treatment of the South Plume consists of operating two groundwater recovery wells located within the plume as described in Section 4.1. The two well recovery system will be evaluated after one year of operation. There will be no gradient control monitoring or flow monitoring required in this area. If the surface water quality in this area degrades or approaches the compliance standards, additional measures will be implemented as approved by the USEPA.

5.3.2.2 Cofferdam Plume Management System – The Cofferdam Plume Management System consists of a subsurface sheet pile barrier wall. The barrier wall has been shown to be effective as a barrier to the NCSZ plume. The surface water analytical results are comparable to the results obtained when the plume was managed using continuously pumped NSCZ groundwater wells prior to the installation of the cofferdam.

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The six NSCZ groundwater wells (BRW-1, BRW-2, BRW-3, BRW-4, BRW-5, and BMW-7A-1) within the cofferdam are former groundwater recovery wells. At least one well will be configured for pumping operations, should pumping be necessary, to maintain compliance with the Surface Water Performance Standards. This well is referred to as C05 GW. Trends in surface water analytical data may be used to assess an operating schedule (if any) for pumping these wells. The well locations are presented in Figure 2A.

5.3.3 FFSZ Groundwater Quality Monitoring

A five well groundwater monitoring system is maintained in the FFSZ. The five FFSZ groundwater monitoring well locations are shown in Figure 2. The wells (BWM-1B, BMW-2B, BMW-3B, BMW-18B, and DMW-52B) are screened in the upper portion of the FFSZ. Appendix E presents the groundwater monitoring well installation logs.

The FFSZ groundwater has been sampled annually and analyzed for volatile organic compounds (VOC). Previous sampling data support the annual sampling frequency. The results of VOC analyses will be used as an indicator of the possibility of site constituents reaching the FFSZ. Groundwater sampling procedures are presented in Appendix C.

Laboratories will use USEPA drinking water method 524 to analyze the FFSZ groundwater for drinking water VOC constituents. The analytical results will be compared to the USEPA drinking water Maximum Contaminant Levels (MCL) as applicable. The drinking water VOC constituent list and associated MCLs are found in Table 6.

If a monitored VOC constituent exceeds its respective MCL for a single monitoring event in wells BWM-1B, BMW-2B, BMW-3B, or BMW-18B, the affected wells will be analyzed for both drinking water VOCs and drinking water semivolatile compounds (SVOC) at the next annual event. SVOC monitoring ceases when SVOC MCLs are not exceeded. DMW-52B groundwater has been tested for and does not contain SVOCs, therefore, this well will not be scheduled for SVOC analysis if any drinking water VOC MCL is exceeded. The SVOC MCLs are found in Table 6.

If any of the five wells have monitored constituents that exceed the respective MCL for two consecutive monitoring periods, a proposal evaluating the likely cause for the presence of the compound and a proposal of relevant response actions will be sent to the USEPA within 60 days of completion of the validation report.

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If all five wells in the monitoring system show no monitored compounds above MCLs for a period of five consecutive years, a petition may be submitted for USEPA review which describes the performance of the monitoring system and request approval to modify or terminate the monitoring program.

5.3.4 REPORTING

A Groundwater Monitoring Report combining the NSCZ gradient control data and the FFSZ water quality data will be included in the Annual Effectiveness Report. The Groundwater Monitoring Report includes:

- NSCZ gradient control data
- A list of the FFSZ wells sampled
- Current and historical tabulated FFSZ analytical results
- A comparison of the FFSZ results to the MCLs
- A figure showing FFSZ and NSCZ well locations
- Field sampling log sheets
- Data validation report
- Conclusions and recommendations (if required)

An individual report will be sent to the USEPA if any of the MCLs are exceeded in the FFSZ water quality data. The report will be sent upon completion of data validation and will include the following:

- A list of the FFSZ wells sampled
- Current and historical tabulated FFSZ analytical results
- A comparison of the FFSZ results to the MCLs
- Field sampling log sheets
- Data validation report
- Conclusions and recommendations

5.3.5 Schedule

Table 1-Brio Site Master Schedule presents the sampling frequency.

5.4 DNAPL

5.4.1 Summary of Post-Closure DNAPL Recovery Program

The post-closure DNAPL recovery plan encompasses the following elements:

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- Maintain the same well abandonment criteria for the 13 DNAPL recovery wells as the pre-closure program. Section 10.3 reiterates the same well abandonment procedure
- Install thirteen 2-inch replacement wells at the original piezometer locations to optimize DNAPL production based on proven DNAPL recovery performance. The 13 preclosure DNAPL piezometers (piezometer numbers: 13, 14, 21, 22, 23, 29, 30, 31, 37, 38, 39, 45, and 46) were replaced with 13 DNAPL wells (B01DW, B02DW, B03DW, B04DW, B05DW, B06DW, B07DW, B08DW, B09DW, B10DW, B11DW, B12DW, and B13DW) respectively. Figure 2 shows the location of the 13 installed DNAPL recovery wells.
- Install six fully penetrating NSCZ groundwater recovery wells in the Pit J area to assist in DNAPL recovery. Groundwater recovery wells (B01GW, B02GW, B03GW, B04GW, B05GW, and C02GW) were installed as shown in Figure 2.
- Install suitable pumps to recover DNAPL. Positive displacement pumps have been installed at each of the replacement DNAPL recovery wells to provide the necessary pumping capacity.

5.4.2 DNAPL Recovery Baseline Evaluation Study

Two goals of this study are to:

- Compare the DNAPL production rates of the post-closure recovery wells to the pre-closure piezometer well rates.
- Establish the optimal pumping rate and schedule for each of the new DNAPL wells.

The baseline evaluation process for the 13 DNAPL wells is defined below:

1. Pump test each well at various DNAPL recovery rates to establish the optimal pump rate and schedule.
2. Initiate DNAPL recovery during normal work schedule (M-F 8 AM-3 PM) once the optimal rate and schedule has been defined.
3. Pump test each well one-day per month for 12 months.
4. Estimate the monthly production of each well from each pump test data set.
5. Compare the production rates of pre-closure piezometers to the post-closure wells.
6. Submit the DNAPL Recovery Baseline Evaluation Report to the USEPA.

5.4.3 DNAPL Recovery Well Abandonment Process

The following process is used to identify DNAPL wells that are considered nonproductive and should be considered for abandonment.

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1. Wells that produce less than six gallons of DNAPL per month – inform the USEPA.
2. Allow the well to rest for one month.
3. Perform a five-day (minimum 30-hour) pump test.
4. If DNAPL recovery is less than 1.5 gallons, allow the well to rest for six months.
5. Perform a five-day (minimum 30-hour) pump test.
6. If DNAPL recovery is less than 1.5 gallons, submit a request for abandonment to the USEPA.
7. Abandon the well after site management has received approval from the USEPA.
8. A plugging and abandonment report will be prepared once the well has been abandoned.

Wells will be abandoned in accordance with state guidelines.

5.4.4 Reporting

A report(s) will be sent to the USEPA covering:

- DNAPL Recovery Baseline Evaluation Study (included in Annual Effectiveness Report)
- DNAPL Recovery Well Abandonment Report

5.4.5 Schedule

The Baseline Evaluation Study and DNAPL Recover Well Abandonment report(s) are scheduled as shown in Table 1.

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6.0 ANNUAL EFFECTIVENESS REPORT

The Annual Effectiveness Report will be submitted annually, starting one year into the post-closure period.

The goal of the Annual Effectiveness Report is to evaluate the long-term performance of the remedy. In addition, this report fulfills the requirements for Quality Assurance Reports and periodic update reports. The report will contain the following elements:

1. Verification that site conditions have not changed and that there has been no land use or development that may affect the remedial action.
2. Recommendations for modifying the Post-Closure MOM Plan.
3. A summary the findings of the monitoring activities (surface water, FFSZ groundwater, NSCZ groundwater gradient control, water treatment plant discharge, air monitoring, and DNAPL recovery performance)
4. A comparison of the media performance to compliance performance standards
5. A summary of field and analytical quality data
6. A summary of health and safety statistics/incidences
7. A summary of emergency actions
8. Note worthy items of EPA interest

The following information will be used to prepare the Annual Effectiveness Report:

- Site Inspections (BSTF files)
- Site Maintenance Check Lists (BSTF files)
- Surface Water Quality (BSTF reports)
- DNAPL Collection and Disposal (BSTF reports)
- DNAPL Recovery Baseline Evaluation (BSTF reports)
- DNAPL Recovery Well Abandonment (for each well(s) abandoned) (BSTF reports)
- Routine Air Monitoring (BSTF files)
- Event Based Fence Line Air Monitoring (BSTF reports)
- Semiannual Fence Line Air Monitoring (BSTF reports)
- NSCZ Groundwater Gradient Control Data (BSTF files)
- FFSZ Groundwater Quality Report (BSTF reports)
- WTP Discharge Water Quality Data (BSTF files)
- Cover Gas Collection Results (BSTF files)

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7.0 OTHER SITE PLANS

7.1 WORKER HEALTH AND SAFETY

All post closure activities shall be in accordance with CFR 1910.120 Hazardous Waste Operations and Emergency Response.

It is the BSTF's policy to do everything reasonable to protect personnel, property, and the public from the results of accidents. The Worker Health and Safety Plan contains standard operating procedures for potentially hazardous activities.

The Worker Health and Safety Plan is a separate document.

7.2 SPILL AND VOLATILE EMISSIONS RELEASE CONTINGENCY/ EMERGENCY NOTIFICATION PLAN

The purpose of the Spill and Volatile Emissions Release Contingency / Emergency Notification Plan (SVERCP/ENP) is to provide procedures for coordinated response by site personnel and outside agencies to spills, volatile emission releases, or accidental discharges of hazardous materials. The plan covers these events whether onsite or offsite, into the air, soils, or waters adjacent to the site, and roadways over which waste material is to be transported. The response will be directed to protect the environment and public health and welfare.

It is also the purpose of the plan to outline methods by which spills and accidental discharges will be reported to Federal and State agencies that have regulatory responsibility over activities and/or facilities involved in spills and accidental discharges.

The Spill and Volatile Emissions Release Contingency / Emergency Notification Plan is a separate document.

7.3 COMMUNITY RELATIONS PLAN

The BSTF has developed a Community Relations Plan that has been approved by the USEPA. The Community Relations Plan includes maintaining a public repository where copies of Brio Site Annual Effectiveness Reports (Section 6.0) will be maintained. The Community Relations Plan is contained in Appendix H.

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**TABLE 1
BRIO SITE MASTER SCHEDULE**

| ACTIVITY | SECTION | DAILY | WEEKLY | MONTHLY | QUARTERLY | ANNUAL | SEMIANNUAL | AS NEEDED | NOTES |
|---------------------------------------|---------|-------|--------|---------|-----------|--------|------------|--------------|-------|
| Inspections | 2.0 | | | | | | | | |
| Roads, Gates, Fences, Signs | 2.2.1 | X | | | | | | | |
| NSCZ Recovery Wells and Piezometers | 2.2.5.4 | X | | | | | | | |
| FFSZ Monitor Wells | 2.2.5.4 | X | | | | | | | |
| Cover | 2.2.2 | X | | | | | | | |
| Site Drainage and Erosion Control | 2.2.3 | X | | | | | | | |
| Barrier Wall | 2.2.4 | X | | | | | | | |
| Water Treatment Plant | 2.2.5.1 | X | | | | | | | |
| Groundwater Collection Hub Facilities | 2.2.5.2 | X | | | | | | | |
| Safety Relief Devices | 2.2.5.3 | | | | | X | | | |
| Underground Utilities | 2.2.5.4 | X | | | | | | | |
| Gas Recover and Collection System | 2.2.6 | X | | | | | | | |
| Mud Gully | 2.2.7 | X | | | | | | | |
| Site Safety Inspections | 2.2 | X | | | | | | | |

**BRIO SITE TASK FORCE
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**TABLE 1 (Continued)
BRIO SITE MASTER SCHEDULE**

| ACTIVITY | SECTION | DAILY | WEEKLY | MONTHLY | QUARTERLY | ANNUAL | SEMIANNUAL | AS NEEDED | NOTES |
|--|---------|-------|--------|---------|-----------|--------|------------|--------------|-------|
| Maintenance | 3.0 | | | | | | | | |
| Onsite Access Roads | 3.1.2 | | | | | | | X | |
| NSCZ Recovery Wells and Piezometers | 3.1.5.5 | | | | | | | X | |
| FFSZ Monitor Wells | 3.1.5.5 | | | | | | | X | |
| Cover | 3.1.3 | | | | | | | X | |
| Barrier Wall | 3.1.4 | | | | | | | X | |
| Water Treatment Plant | 3.1.5.1 | | | | | | | X | |
| Groundwater Collection Hub Facilities | 3.1.5.2 | | | | | | | X | |
| Safety Relief Devices | 3.1.5.3 | | | | | | | X | |
| Underground Utilities | 3.1.5.4 | | | | | | | X | |
| Gas Recover and Collection System Yr. 1 | 3.1.6.1 | | | | | | | X | |
| Gas Recover and Collection System Post Yr. 1 | 3.1.6.2 | | | | | | | X | |
| Mud Gully | 3.1.7 | | | | | | | X | |
| Safety Equipment | 3.1.8 | | | | | | | X | |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**TABLE 1 (Continued)
BRIO SITE MASTER SCHEDULE**

| ACTIVITY | SECTION | DAILY | WEEKLY | MONTHLY | QUARTERLY | ANNUAL | SEMIANNUAL | AS NEEDED | NOTES |
|--|-----------------|-------|--------|--|-----------|--------|------------|--------------|-------|
| Operations and Monitoring | 4.0-5.0 | | | | | | | | |
| Treated Water Sampling | 4.1.2 | | | | | | | X | |
| Gas Recover and Collection System Yr. 1 | 4.3.3 | X | | | | | | | |
| Gas Recover and Collection System Post Yr. 1 | 4.3.4 | | X | | | | | | |
| Routine Air Monitoring | 5.1.1 | X | | | | | | | |
| Event Based Air Monitoring | 5.1.2 | | | | | | | X | |
| Scheduled Fence Line Air Monitoring | 5.1.3 | | | | | | X | | |
| Surface Water Sampling | 5.2 | | | | X | | | | |
| NSCZ Gradient Control Monitoring | 5.3.1- 5.3.2 | | X | | | | | | |
| FFSZ Groundwater Sampling | 5.3.3 | | | | | X | | | |
| DNAPL Recovery Baseline Evaluation Study | 5.4.2 | | | 1 st year for 12 months | | | | | |
| DNAPL Recovery | 4.2 | X | | | | | | | |
| DNAPL Disposal | 4.2.1 | | | | | | | X | |

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

TABLE 1 (Continued)
BRIO SITE MASTER SCHEDULE

| ACTIVITY | SECTION | DAILY | WEEKLY | MONTHLY | QUARTERLY | ANNUAL | SEMIANNUAL | AS NEEDED | NOTES |
|-------------------------------------|---------|-------|--------|---------|-----------|--------|------------|--------------|---------|
| Reporting | 2.0-6.0 | | | | | | | | |
| Inspection | 2.3 | X | | | | (AER) | | | 1 |
| Maintenance | 3.2.7 | | | | | (AER) | | X | 1 |
| Cover Compartment Gas Collection | 4.3.4 | | | | | (AER) | | | |
| All Air Monitoring | 5.1.4 | X | | | | (AER) | | X | 1, 2, 3 |
| Surface Water | 5.2.6 | | | | | (AER) | | | 4 |
| WTP Discharge Water Quality | 4.1.2.4 | | | | | (AER) | | | 1 |
| NSCZ Gradient Control Monitoring | 5.3.3 | | | | | (AER) | | | |
| FFSZ Groundwater Monitoring | 5.3.3 | | | | | (AER) | | | 5 |
| DNAPL Baseline Evaluation | 5.4.2 | | | | | (AER) | | X | |
| DNAPL Recovery System | 4.2.4 | | | | | (AER) | | X | 6 |
| DNAPL Recovery Well Abandon. Report | 5.4.4 | | | | | (AER) | | X | |
| Areas Regulated for Vinyl Chloride | 4.4.2 | | | | | | | X | 7 |
| Annual Effectiveness Report (AER) | 6.3 | | | | | X | | | |
| Emergency Notification | 7.2 | | | | | (AER) | | X | |

1. Routine reports filed onsite. Results summarized in AER
2. Event based air monitoring report sent to USEPA after data validation. Results summarized in AER
3. Scheduled air monitoring - if FLAAQS are exceeded, report to USEPA after data validation - otherwise full report in AER
4. If Surface Water Performance Standards are exceeded, report to USEPA after data validation - otherwise full report in AER
5. If MCLs are exceeded, report to USEPA after data validation - otherwise full report in AER
6. A report/manifest will be sent to the Texas Commission on Environmental Quality (TCEQ) for each DNAPL shipment
7. Report to OSHA Area Director within one month following the establishment of a regulated area. As needed thereafter

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

TABLE 2
TREATED WATER DISCHARGE CRITERIA

| PARAMETER | DISCHARGE LIMIT (mg/l) | PQL (mg/l) |
|---|------------------------------|---------------|
| General Chemistry | | |
| pH | 6.0-9.0 (units) | n/a |
| BOD | 81 | 5 |
| COD | 568 | 20 |
| Sulfur (Sulfide) | 0.6 | 0.2 |
| Phosphorus | 4 | 0.1 |
| Ammonia as N | 23 | 4 |
| Oil and Grease | 31 | 10 |
| Phenolics | 0.7 | 0.2 |
| TSS | 62 | 5 |
| Metals | | |
| Copper | 0.093 | 0.010 |
| Volatiles | | |
| 1, 1, 2-Trichloroethane | 0.054 | 0.010 |
| 1, 2-Dichloroethane | 0.211 | 0.010 |
| Vinyl Chloride | 0.268 | 0.010 |
| Methylene Chloride | 0.089 | 0.010 |
| Semivolatiles | | |
| Bis(2-chloroethyl)ether | 0.757 | 0.020 |
| Total Carcinogenic PNAs ¹ | 0.350 (total) | 0.020 (each) |
| Total Noncarcinogenic PNAs ² | 0.470 (total) | 0.020 (each) |

- | | |
|--|--|
| 1. Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenzo(a,h)anthracene Indeno(1,2,3,c,d)pyrene Chrysene | 2. Acenaphthene Anthracene Pyrene Fluoranthene Fluorene Naphthalene Phenanthrene |
|--|--|

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

TABLE 3A
VOLATILE EMISSION RESPONSE

| LOCATION | ACTION LEVEL | RESPONSE ⁴ |
|--------------------------------|--|---|
| Immediate Work or Release Area | 5 muab ¹ above background for 15 seconds ² | Mitigate release and notify project manager |
| Immediate Work or Release Area | 1 muab above background for 1 minute ² | Mitigate release and notify project manager |
| Fence Line | 1 muab above background for 5 minutes ³ | Mitigate release and notify project manager |

1. muab = measurement unit above background.
2. WHASP Section 4.1.3.
3. ROP AQMS Performance Criteria Table 5 and the Spill/Volatile Emission Release. Contingency Plan and Emergency Notification Plan (SVERCP/ENP) Section 4.2.3.
4. Mitigation per WHASP and SVRCP/ENP procedures.

TABLE 3B
DUST EMISSION RESPONSE

| ACTION LEVEL | RESPONSE |
|---|-------------------------------|
| 5 mg/m ³ sustained for 60 seconds ¹ | Mitigate release ² |

1. 1/2 the ACGIH TLV of 10 mg/m³ - WHASP Section 4.2.1
2. Corrective action is at the direction of the project manager, health and safety administrator, site construction manager, or quality assurance officer.

TABLE 3C
FENCELINE AMBIENT AIR QUALITY STANDARDS
(FLAAQS)

| COMPOUND | FLAAQS (24-HOUR AVERAGE-ppb) |
|---|---------------------------------|
| Benzene | 50 |
| 1, 2-Dichloroethane (Ethylene Dichloride) | 200 |
| Methylene Chloride | 1100 |
| 1, 1, 2-Trichloroethane | 656 |
| Vinyl Chloride | 690 |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**TABLE 4
SURFACE WATER PERFORMANCE STANDARDS
AND QUALITY GOALS**

| Compound | SURFACE WATER PERFORMANCE STANDARDS | | BSTF SURFACE WATER QUALITY GOALS* | |
|-------------------------|--|--------------------------------|--|--------------------------------|
| | Mud Gully (µg/ l) | Clear Creek (µg/ l) | Mud Gully (µg/ l) | Clear Creek (µg/ l) |
| 1, 1, 2-Trichloroethane | 4,180 | 41.8 | 3020 | 302 |
| 1, 2-Dichloroethane | 20,000 | 1,794 | 739 | 73.9 |
| 1, 1-Dichloroethene | 8,740 | 87.4 | 58.4 | 5.84 |
| Vinyl Chloride | 9,450 | 94.5 | 4150 | 415 |

*These levels are based on the Texas Commission on Environmental Quality (TCEQ) surface water quality standards as adopted in August 2002, and based on calculations presented in the Texas Total Maximum Daily Load (TMDL) Program.

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**TABLE 5
NSCZ GROUNDWATER
PERFORMANCE STANDARDS**

| PARAMETER | CRITERIA (mg/l) |
|-------------------------|-----------------|
| 1, 1, 2-Trichloroethane | 4.18 |
| 1, 2-Dichloroethane | 20.00 |
| 1, 1-Dichloroethene | 8.74 |
| Vinyl Chloride | 9.45 |

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

TABLE 6
FFSZ GROUNDWATER DRINKING WATER LIST AND
MAXIMUM CONTAMINANT LEVELS (MCL)

| DRINKING WATER VOLATILE LIST | MCL (µg/ l) |
|--|------------------------|
| Benzene | 5 |
| Carbon Tetrachloride | 5 |
| Chlorobenzene | 100 |
| 1, 2-Dichlorobenzene (o-dichlorobenzene) | 600 |
| 1, 4-Dichlorobenzene (p-dichlorobenzene) | 75 |
| 1, 2-Dichloroethane | 5 |
| 1, 1-Dichloroethene | 7 |
| cis-1, 2-Dichloroethene | 70 |
| trans-1, 2-Dichloroethene | 100 |
| Methylene Chloride (Dichloromethane) | 5 |
| 1, 2-Dichloropropane | 5 |
| Ethylbenzene | 700 |
| Styrene | 100 |
| Tetrachloroethene | 5 |
| Toluene | 1000 |
| 1, 2, 4-Trichlorobenzene | 70 |
| 1, 1, 1-Trichloroethane | 200 |
| 1, 1, 2-Trichloroethane | 5 |
| Trichloroethene | 5 |
| Vinyl Chloride | 2 |
| Xylenes (Total) | 10000 |
| Total trihalomethanes (TTHMs) * | 100 |

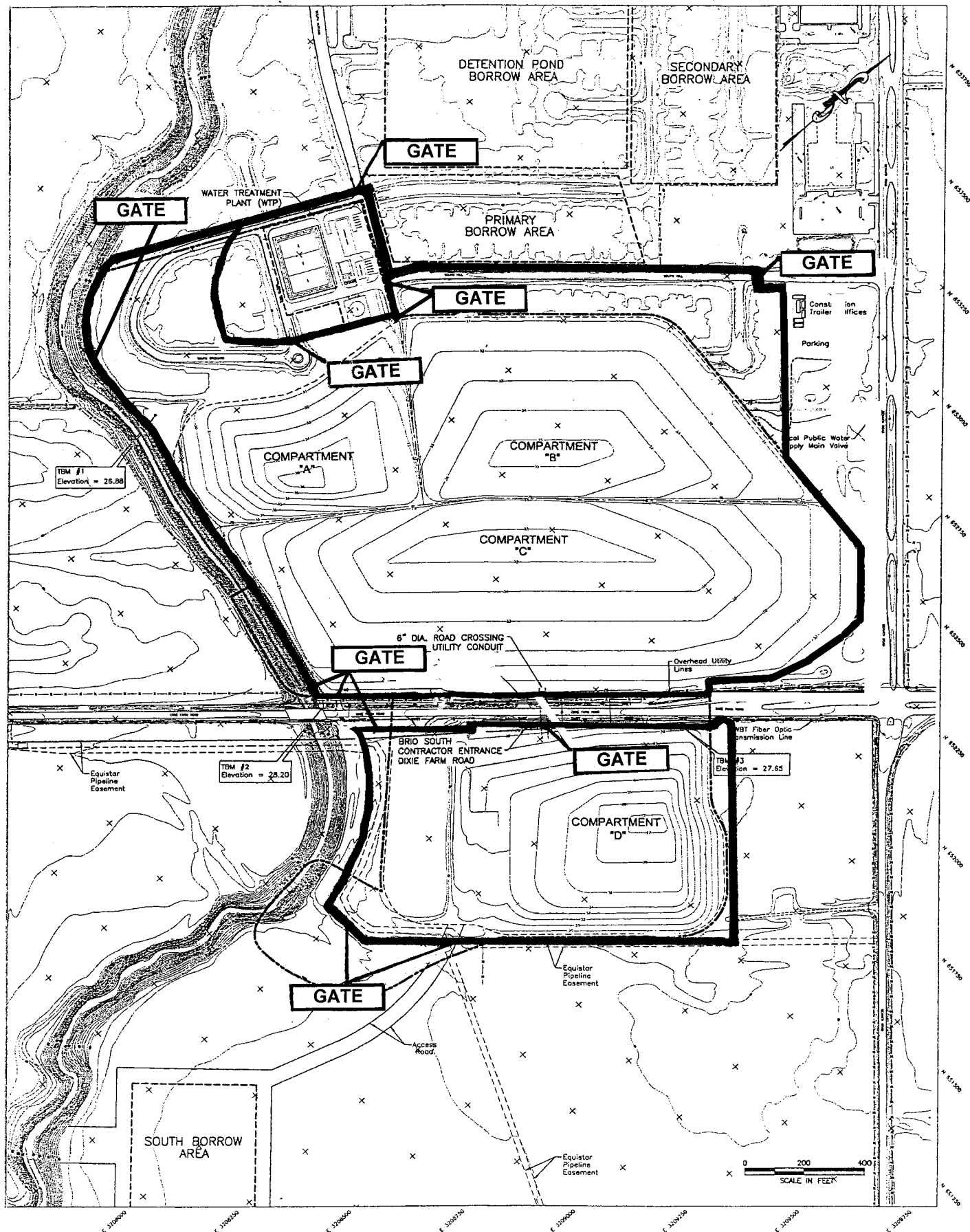
* Total trihalomethanes = Chloroform, Bromodichloromethane,
Bromoform, and
Dibromochloromethane

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

TABLE 6 (Continued)

| DRINKING WATER SEMIVOLATILE LIST ¹ | MCL (µg/ l) |
|--|------------------------|
| Benzo(a)pyrene (PAHs) | 0.2 |
| bis(2-Ethylhexyl)phthalate ² | 6 |
| Hexachlorobenzene | 1 |
| Hexachlorocyclopentadiene | 50 |
| Pentachlorophenol | 1 |

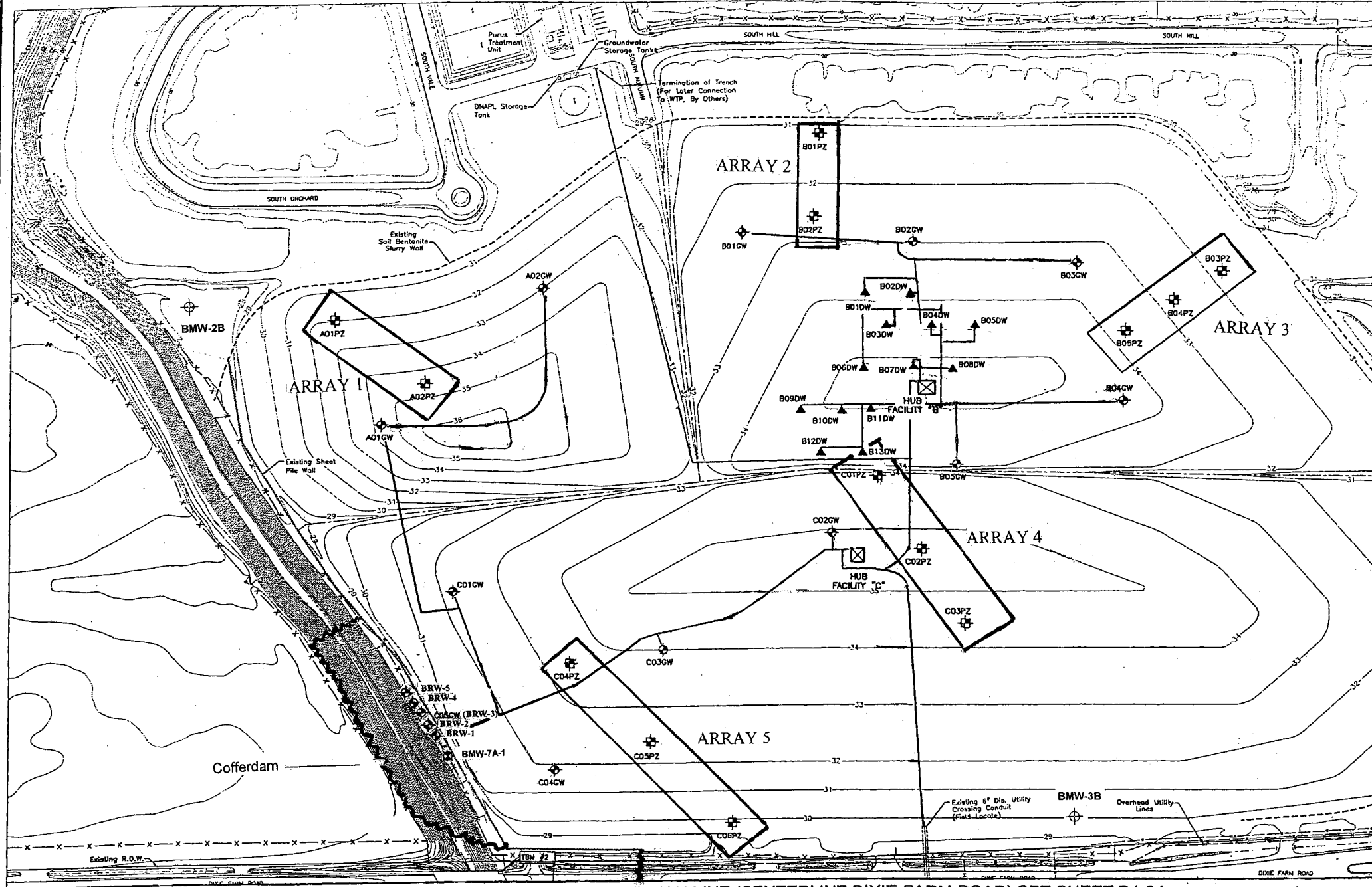
1. Excluding pesticides, herbicides, and PCBs
2. Also known as di(2-Ethylhexyl)phthalate



FENCELINE ———

BRIO SITE TASK FORCE BRIO SITE FENCELINE

FIGURE 1



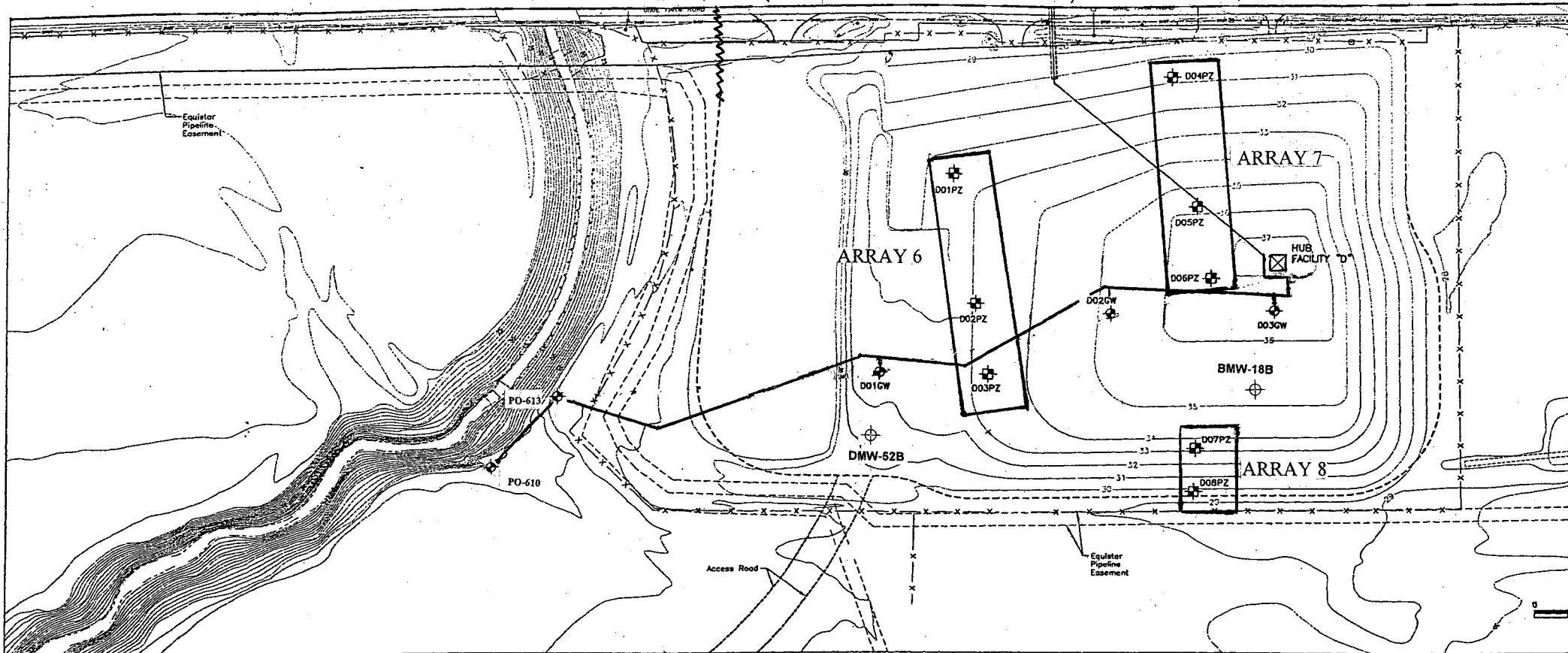
MATCH LINE (CENTERLINE DIXIE FARM ROAD) SEE SHEET P4-04

| HUB A | | | | |
|--------|-------------------|-------------|--------------|--|
| ID No. | DESCRIPTION | COORDINATES | | |
| | | NORTHING | EASTING | |
| HUB A | NE CORNER OF BLDG | 651,282.31 | 3,208,589.06 | |
| HUB A | SW CORNER OF BLDG | 651,248.43 | 3,208,591.06 | |
| A01GW | GW WELL | 651,153.28 | 3,208,457.53 | |
| A02GW | GW WELL | 651,518.18 | 3,208,466.45 | |
| A01PZ | PIEZOMETER | 651,218.71 | 3,208,268.66 | |

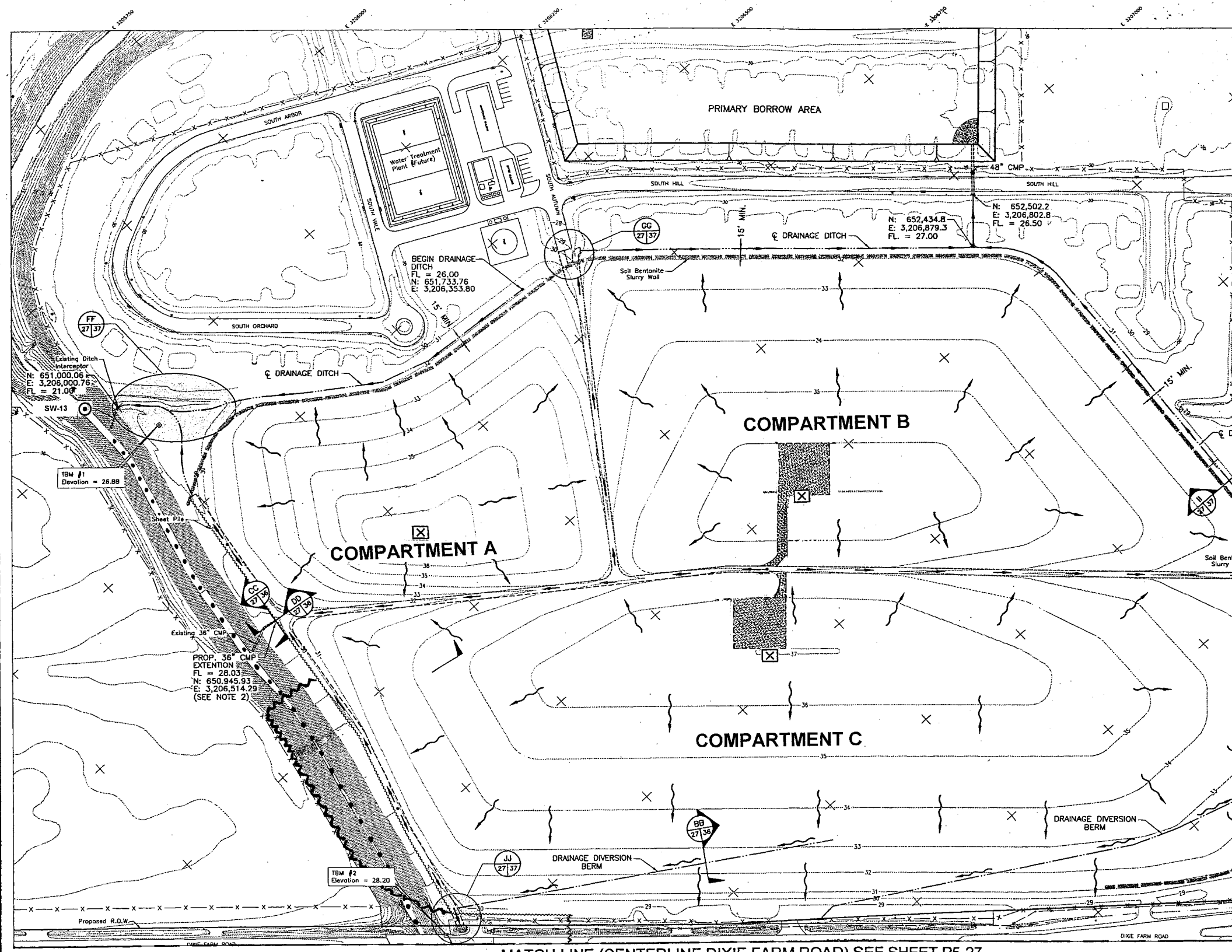
| HUB B | | | | |
|--------|-------------------|-------------|--------------|--|
| ID No. | DESCRIPTION | COORDINATES | | |
| | | NORTHING | EASTING | |
| HUB B | NE CORNER OF BLDG | 651,911.28 | 3,207,040.21 | |
| HUB B | SW CORNER OF BLDG | 651,874.41 | 3,207,039.55 | |
| B01GW | GW WELL | 651,831.75 | 3,206,623.47 | |
| B02GW | GW WELL | 652,043.95 | 3,206,833.31 | |
| B03GW | GW WELL | 650,030.88 | 3,207,051.28 | |

| HUB B (CONT'D) | | | | |
|----------------|-------------|-------------|------------|--|
| ID No. | DESCRIPTION | COORDINATES | | |
| | | NORTHING | EASTING | |
| B03GW | DNAPL WELL | 651914.59 | 3206913.28 | |
| B04GW | DNAPL WELL | 651971.60 | 3206963.25 | |
| B05GW | DNAPL WELL | 652027.43 | 3207013.38 | |
| B06GW | DNAPL WELL | 651836.83 | 3206943.91 | |
| B07GW | DNAPL WELL | 651901.42 | 3206997.56 | |

| HUB C | | | | |
|--------|-------------------|-------------|--------------|--|
| ID No. | DESCRIPTION | COORDINATES | | |
| | | NORTHING | EASTING | |
| HUB C | NE CORNER OF BLDG | 651,628.43 | 3,207,040.21 | |
| HUB C | SW CORNER OF BLDG | 651,591.06 | 3,207,039.55 | |
| C01GW | GW WELL | 651,248.43 | 3,208,591.06 | |
| C02GW | GW WELL | 650,970.43 | 3,207,013.38 | |
| C03GW | GW WELL | 651,248.43 | 3,208,591.06 | |



| HUB D | | | |
|--------|-------------------|-------------|--------------|
| ID No. | DESCRIPTION | COORDINATES | |
| | | NORTHING | EASTING |
| HUB D | NE CORNER OF BLDG | 651,340.73 | 3,208,210.35 |
| HUB D | SW CORNER OF BLDG | 651,306.85 | 3,208,212.35 |
| D01GW | GW WELL | 650,758.74 | 3,207,930.21 |
| D02GW | GW WELL | 651,082.25 | 3,208,098.90 |
| D03GW | GW WELL | 651,271.12 | 3,208,262.94 |
| D01PZ | PIEZOMETER | 651,044.39 | 3,207,780.60 |
| D02PZ | PIEZOMETER | 650,940.74 | 3,207,951.66 |
| D03PZ | PIEZOMETER | 650,882.89 | 3,208,046.04 |
| D04PZ | PIEZOMETER | 651,387.84 | 3,207,892.07 |
| D05PZ | PIEZOMETER | 651,287.71 | 3,208,065.40 |
| D06PZ | PIEZOMETER | 651,231.67 | 3,208,160.82 |
| D07PZ | PIEZOMETER | 651,040.22 | 3,208,341.90 |
| D08PZ | PIEZOMETER | 650,993.72 | 3,208,390.65 |



MATCH LINE (CENTERLINE DIXIE FARM ROAD) SEE SHEET P5-26

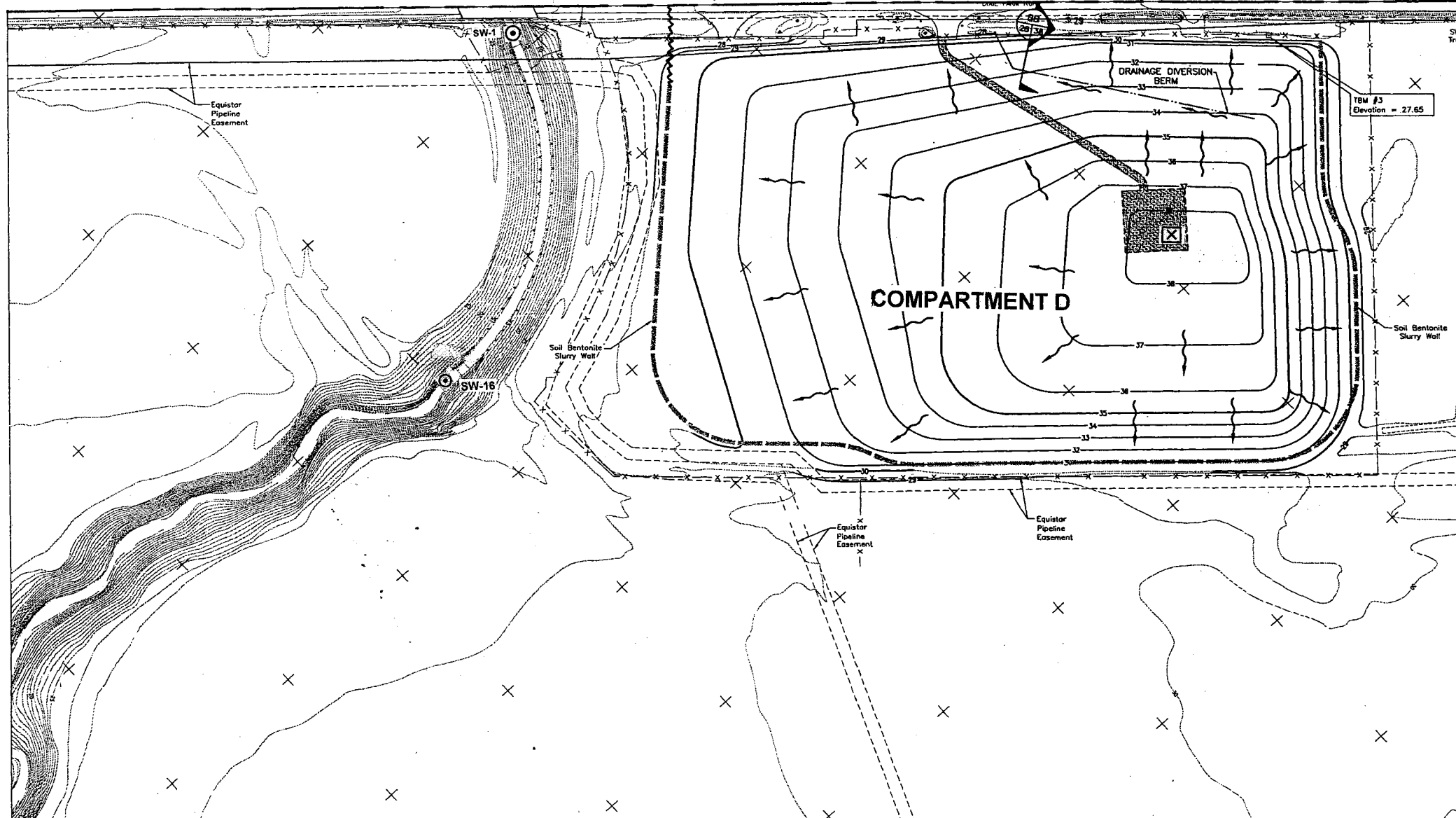


Figure 4

ANALYTICAL SUMMARY

Laboratory Name

Reported On:

Client Name: Brio Site Task Force

Sample Name:

Client ID:

Project: Brio Treated Water

Work Order:

Date Collected:

Matrix: Water

Date Received:

| PARAMETER | DISCHARGE LIMIT (mg/L) | METHOD | PQ LIMITS (mg/L) | RESULTS (mg/L) |
|---------------------------------|---------------------------|--------|---------------------|-------------------|
| METALS | | | | |
| Copper | 0.074 | | 0.010 | |
| CONVENTIONAL CHEMISTRIES | | | | |
| Phenol | 0.7 | | 0.2 | |
| Biochemical Oxygen Demand | 81 | | 5.0 | * |
| Chemical Oxygen Demand | 568 | | 20 | |
| Sulfide | 0.6 | | 0.2 | |
| Phosphorus (Total) | 4 | | 0.1 | |
| Ammonia (N) | 23 | | 4.0 | |
| Oil and Grease | 31 | | 10 | |
| Total Suspended Solids | 62 | | 5.0 | |
| pH | 6-9 | | | |
| VOLATILES | | | | |
| 1,2-Dichloroethane | 0.211 | | 0.010 | |
| Methylene Chloride | 0.089 | | 0.010 | |
| 1,1,2-Trichloroethane | 0.054 | | 0.010 | |
| Vinyl Chloride | 0.268 | | 0.010 | |

J = Compound is present, but below the PQL.

B = Compound is also found in blank.

* = BOD result is not available due to length of analysis.

ANALYTICAL SUMMARY

Laboratory Name

Reported On:**Client Name:** Brio Site Task Force**Sample Name:****Client ID:****Project:** Brio Treated Water**Work Order:****Date Collected:****Matrix:** Water**Date Received:**

| PARAMETER | DISCHARGE LIMIT (mg/L) | METHOD | PQ LIMITS (mg/L) | RESULTS (mg/L) |
|-----------------------------------|---------------------------|--------|---------------------|-------------------|
| SEMIVOLATILES | | | | |
| Bis(2-chloroethyl)ether | 0.757 | | 0.020 | |
| Total Carcinogenic PNAs | 0.350 | | | |
| Benzo (a) anthracene | | | 0.010 | |
| Benzo (b) fluoranthene | | | 0.010 | |
| Benzo (k) fluoranthene | | | 0.010 | |
| Benzo (a) pyrene | | | 0.010 | |
| Dibenzo (a,h) anthracene | | | 0.010 | |
| Indeno (1,2,3-cd) pyrene | | | 0.010 | |
| Chrysene | | | 0.010 | |
| Total Noncarcinogenic PNAs | 0.470 | | | |
| Acenaphthene | | | 0.010 | |
| Anthracene | | | 0.010 | |
| Fluoranthene | | | 0.010 | |
| Fluorene | | | 0.010 | |
| Naphthalene | | | 0.010 | |
| Phenanthrene | | | 0.010 | |
| Pyrene | | | 0.010 | |

J = Compound is present, but below the PQL.

B = Compound is also found blank.

FIGURE 5 TREATED WATER DISCHARGE REPORT

TANK ID: _____

FILLING COMPLETED: _____ **(Date/Time/Initials)**

SAMPLE COLLECTED: _____ (Date/Time/Initials)

SAMPLE RESULTS RECEIVED: _____ (Date/Time/Initials)

SAMPLE PASSED DISCHARGE CRITERIA: YES/NO

Circle one

DISCHARGE STARTED: _____ (Date/Time/Initials)

DISCHARGE COMPLETED: _____ **(Date/Time/Initials)**

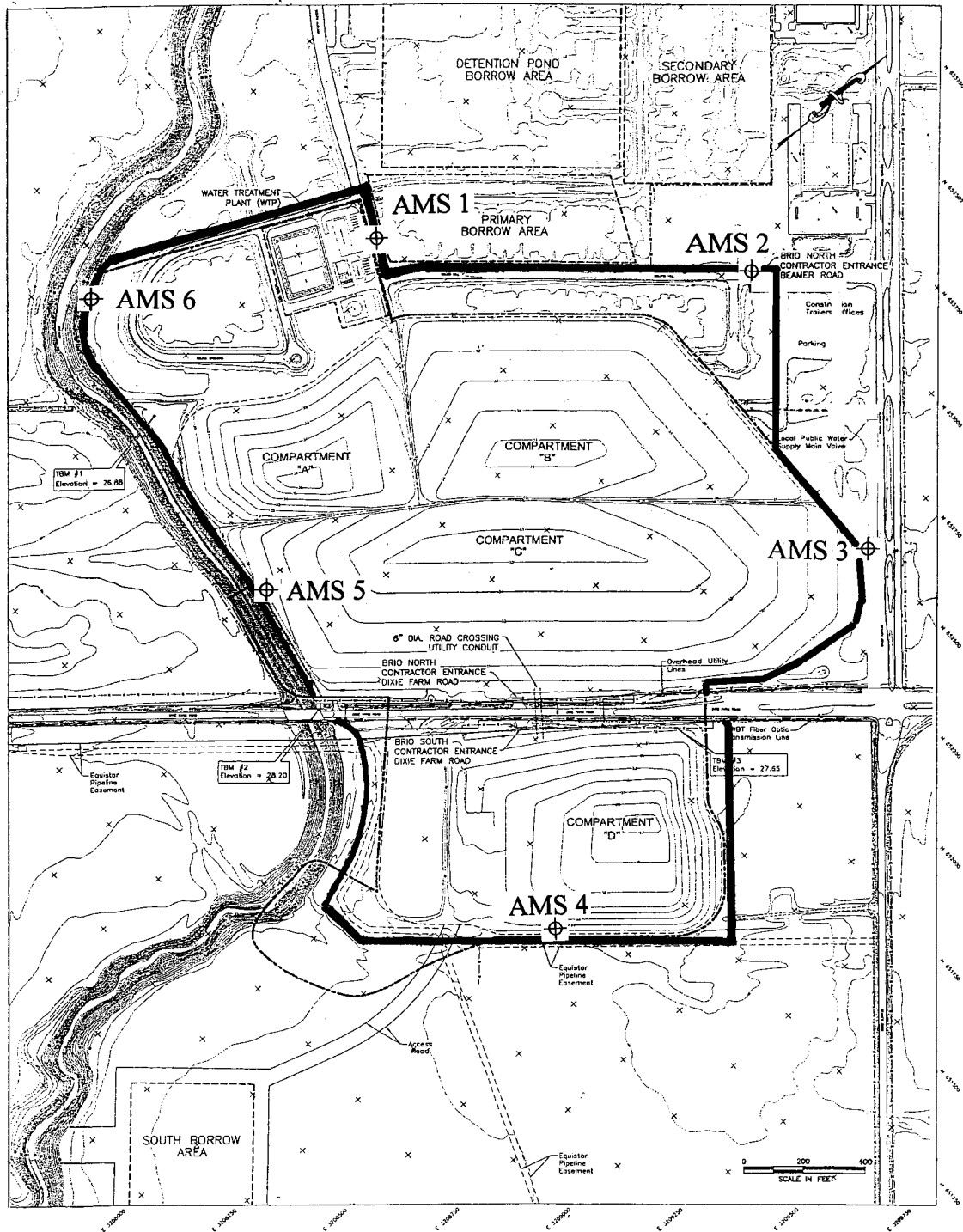
FIELD TESTS – Each day of discharge

| Date | Time | pH | D.O. (mg/L) | Temp. (°F) | Initials |
|------|------|----|----------------|---------------|----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

DISCHARGE FLOWS

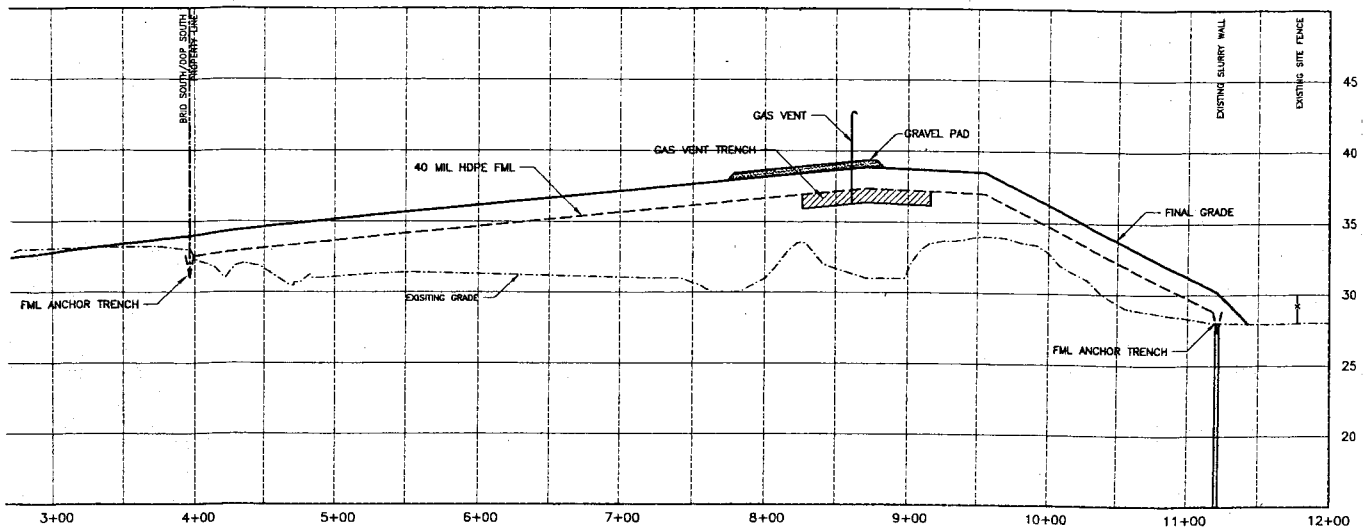
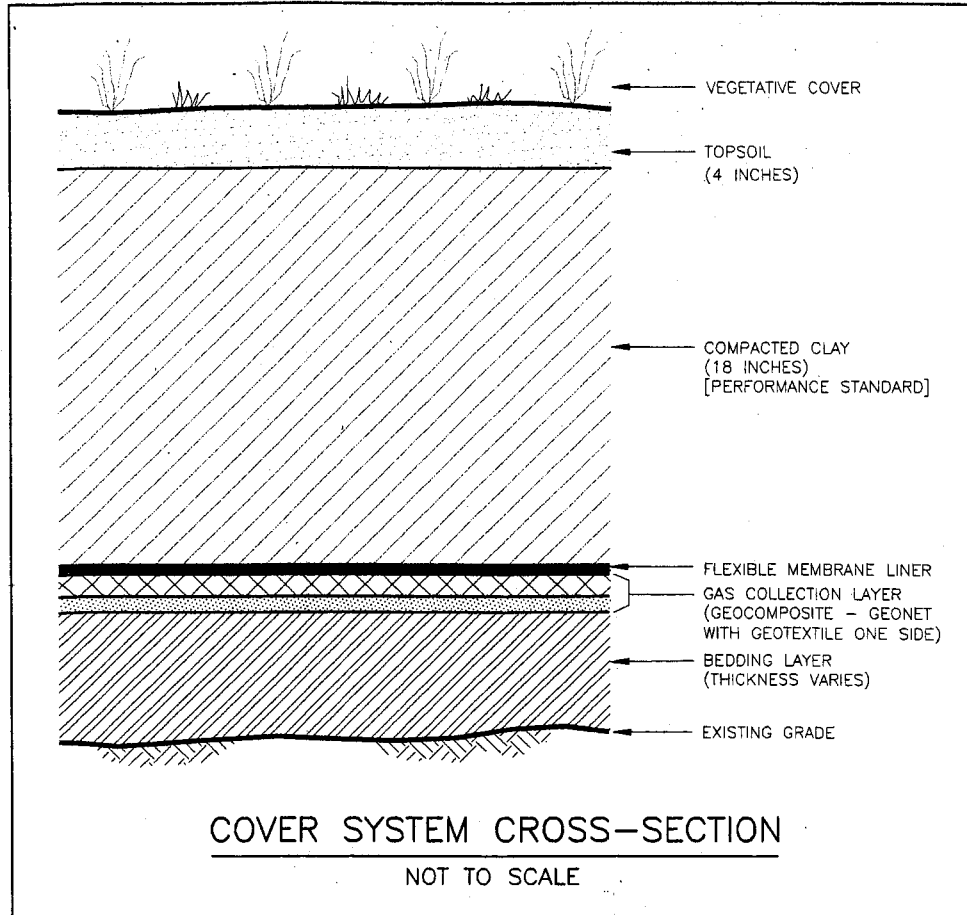
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FIGURE 6
SCHEDULED FENCELINE AIR MONITORING
SAMPLE LOCATIONS



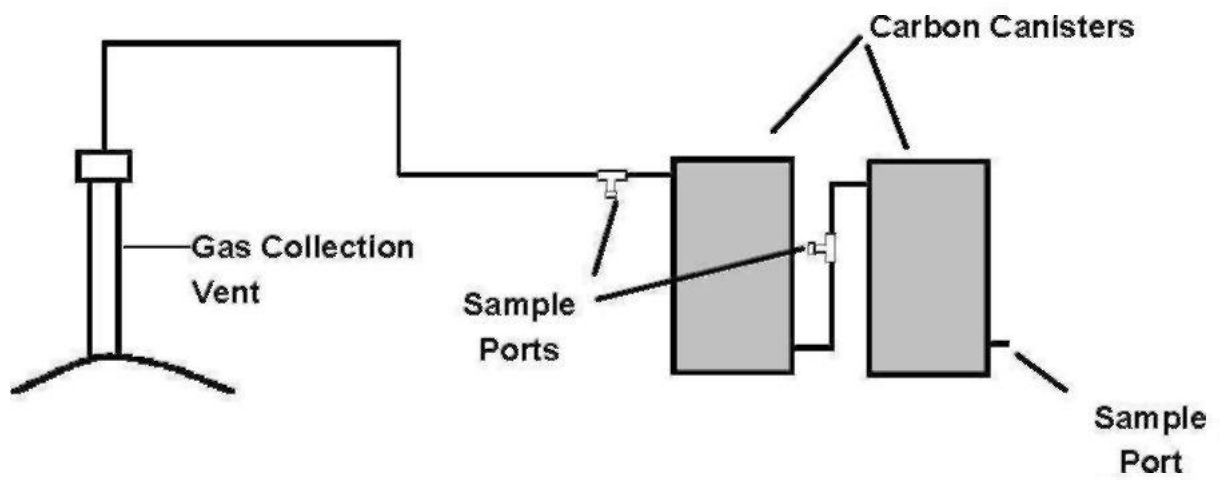
⊕ Air Monitoring Station

**FIGURE 7
COVER SYSTEM DESIGN**



TYPICAL FINAL GRADING CROSS SECTION

FIGURE 8
LONG TERM GAS COLLECTION
SYSTEM EQUIPMENT



**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**APPENDIX A
SITE INSPECTION CHECKLIST**

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

BRIO SITE INSPECTION CHECKLIST

Page
1 of 2

Date:

| | ITEM INSPECTED | CHECK FOR | CONDITION FOUND | LOCATION | TIME | INITIALS |
|--|--------------------------------------|--|-----------------|----------|------|----------|
| ACCESS ROADS/GATES/FENCE S/SIGNS | Roads | Excessive Erosion Overgrowth | | | | |
| | Perimeter Fencing and Signs | Deterioration Damage Signs 150 ft. | | | | |
| | Gates/Locks | Operation Deterioration Damage | | | | |
| COVER | Surface | Damage by Vehicles Excessive Erosion Settlement Ponding | | | | |
| | Slopes | Failure Excessive Erosion | | | | |
| | Vegetation | Distressed Grasses Excessive Woody Plants | | | | |
| | Drainage Pipes/Swales/ Ditches | Obstructions Excessive Erosion/Trash | | | | |
| BARRIER WALL | Alignment | Penetrations Surface Damage | | | | |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

BRIO SITE INSPECTION CHECKLIST

Page
2 of 2

Date:

| | ITEM INSPECTED | CHECK FOR | CONDITION FOUND | LOCATION | TIME | INITIALS |
|------------------|--|---|-----------------|----------|------|----------|
| EQUIPMENT | Portable Pumps Pump # and Size: | Oil Level Test Run | | | | |
| | Portable Generators Generator # and Size: | Oil Level Test Run Voltage Check | | | | |
| | Pressure Washer | Oil Level Hoses Trailer Condition PSV Inspection is Indate Test Run | | | | |
| | Vehicles | Fluid Levels Hoses & Belts Tire Condition and Pressure Registration Inspection | | | | |
| | Other: | | | | | |
| | Other: | | | | | |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

APPENDIX B

SITE MAINTENANCE CHECKLIST

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

BRIO SITE MAINTENANCE CHECKLIST

Date: _____

Facilities to be maintained:

Fences/Gates/Signs/Locks
Onsite Access Roads
Cover/Geosynthetic
Barrier Wall

Groundwater/DNAPL Recovery and Treatment System
Gas Recovery and Collection System
Mud Gully Improvements
Portable Pumps

Pressure Washer
Air Conditioners
Vehicles
Other Facilities

| Facility | Reason for Maintenance | Maintenance Performed | Maintenance Completed | Time | Initials |
|----------|------------------------|-----------------------|-----------------------|------|----------|
| | | | | | |
| | | | | | |
| | | | | | |

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

APPENDIX C

**SAMPLING AND ANALYSIS PLAN AND
QUALITY ASSURANCE/QUALITY CONTROL PLAN**

SAMPLING AND ANALYSIS PLAN
QUALITY ASSURANCE/QUALITY CONTROL PLAN
FOR
THE BRIO
SUPERFUND SITE
HARRIS COUNTY, TEXAS

Prepared By The
BRIO SITE TASK FORCE
2501 Dixie Farm Road
Houston, Texas 77089

FEBRUARY 2004

SAMPLING AND ANALYSIS-QA/QC PLAN

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SAMPLING AND ANALYSIS-QA/QC PLAN

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SAMPLING AND ANALYSIS-QA/QC PLAN

1.0 INTRODUCTION

This plan has been prepared to provide standard operating procedures (SOPs) and quality assurance/quality control (QA/QC) requirements for the Brio Site during the post closure maintenance, operations, and monitoring (MOM) period. Sampling media types at the Brio Site include groundwater, surface water, treated water, and air.

Sections 2.0 through 10.0 present the standard operating procedures (SOPs) for sampling and monitoring of the various media during the MOM period. The SOPs were written specifically for the Brio Site. They are designed to ensure that the samples are collected in such a manner that they are representative of field conditions and that the samples are properly identified, preserved, and transported to maintain sample integrity.

The sampling objectives during the MOM period are:

- a) Verify that discharged treated waters meet the discharge criteria listed in Table 1 prior to discharge
- b) Monitor the surface water quality in Mud Gully and Clear Creek
- c) Monitor groundwater quality in the Fifty-Foot Sand Zone (FFSZ)
- d) Monitor air quality routinely in site work areas, per event for potential releases, and semi-annually at the site perimeter
- e) Monitor Numerous Sand Channels Zone (NSCZ) groundwater gradient.
- f) Conduct sampling and analysis activities in such a manner as to provide defensible results

The QA/QC Plan presented in Section 11.0 covers field sampling and analytical QA/QC. The QA/QC Plan outlines the requirements necessary to accomplish the Brio Site project objectives.

SAMPLING AND ANALYSIS-QA/QC PLAN

2.0 SOP-001: SAMPLE CONTAINERS AND PRESERVATION

All samples collected for compliance purposes will be stored in containers that are certified clean. The analytical laboratory designated to perform the chemical analyses will often provide pre-cleaned sample containers. The laboratory should specify the type, size, and quantity of sample containers for each parameter to be analyzed.

The designated analytical laboratory will prepare the sample containers with the appropriate chemical preservative for the sample matrix and the analysis requested. Sample containers containing water or soil matrices are to be placed on ice in an insulated cooler upon sample collection. Air samples collected in SUMMA canisters do not require cooling.

Multiple analytical parameters having like preservation requirements may be listed on the same sample container as long as the additive minimum volume requirements for all of the parameters are met.

SAMPLING AND ANALYSIS-QA/QC PLAN

3.0 SOP-002: SAMPLE DOCUMENTATION

All forms and logbooks entries will be printed in black ink. All entries will be initialed and dated. Corrections will be made with a single strike through the error, the correction written next to the strikeout, the person's initials and the date. The use of correction fluid or tape is prohibited.

3.1 FIELD LOGBOOK

All samples will be logged in a bound field logbook. The following information will be entered into the field logbook:

- Sample identification
- Date and time of sample collection
- Sampler's name
- Matrix
- Level PPE
- Weather
- Analytical parameters
- Sample appearance
- Sampling method
- SOP # reference
- Laboratory name
- Additional comments

3.2 SAMPLE LABELS

Sample labels will be completed and attached to each sample container. Clear waterproof tape or sealable plastic bags will be used when necessary for label protection. The following information will be recorded on each sample container label:

- Project name (Brio)
- Sample identification
- Date and time of sample collection
- Preservatives
- The sampler's initials

3.3 CUSTODY SEAL

A custody seal will be completed and attached to each container linking the cap with the container or it may be placed on the outside of the cooler. The sampler will sign the custody seal.

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3.3 CHAIN OF CUSTODY

Chain-of-custody forms (COCs) will be completed for all samples collected. The COC forms will contain the following information:

- Project name, address, phone, and project contact name
- Sample identification
- Date and time of sample collection
- Sample matrix
- Preservatives for each sample
- Required analyses
- Signatures of all parties that handle the samples beginning with sample collection and ending at the laboratory receiving department
- Date and time of all sample custody transfers from one party to another

The COC will be signed as “relinquished” and “received” along with the date and time for each transfer of sample custody even if the two parties involved in the transfer work for the same company and work at the same location.

The completed COCs may be placed in a plastic sealable storage bag and attached to the underside of the cooler lid for overnight shipping or given directly to a local courier service or laboratory courier.

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4.0 SOP-003: TREATED WATER SAMPLING PROCEDURE

Treated water samples will be collected from on-site storage tanks. The following procedures will be followed for water sampling from the storage tanks to assure that treated water is acceptable for direct discharge based on the discharge criteria as presented in Table 2 of the MOM Plan and Table 1 of this plan.

Typically, tanks will be sampled using a coliwasa sampling device. Eight locations at approximately equal distances around the tank will be composited in the field.

4.1 EQUIPMENT

- Field logbook
- Water proof pens
- Sample bottles
- Coliwasa (or similar device)
- Chain-of-custody forms/custody seals
- Shipping containers
- Non-phosphate soap (Liquinox)
- Deionized water
- Appropriate PPE

4.2 SAMPLING PROCEDURE USING A COLIWASA SAMPLER

- 4.2.1 Check the coliwasa to verify that it is functioning and has been properly decontaminated. Adjust the locking mechanism, if necessary, so that the stopper provides a tight closure.
- 4.2.2 Treated water is expected to be free of hazardous materials; however, the sampler should as a minimum wear a hard hat, steel-toe shoes, safety glasses, and latex or nitrile gloves when sampling and handling treated water.
- 4.2.3 Put the coliwasa in the open position by placing the stopper rod handle in the T position and pushing the rod down until the handle sits against the locking block.
- 4.2.4 Slowly lower the coliwasa into the water at a rate that permits approximately equal levels of liquid inside and outside the sampler tube. If the level of the liquid inside the sample tube is lower than outside the tube, the sampling rate is too fast and will result in a non-representative sample.
- 4.2.5 When the coliwasa is at the desired depth (close to the bottom of the tank without touching), push the tube downward against the stopper to close the sampler. Lock the coliwasa in the closed position by turning the handle until it is upright and one end rests tightly on the locking block.
- 4.2.6 Slowly withdraw the coliwasa from the tank with one hand while wiping the sampler tube with a clean disposable cloth or rag with the other hand.

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- 4.2.7 Carefully discharge the sample into the compositing container by pulling the lower end of the T – handle away from the locking block, while the lower end of the sampler is positioned over the container.
- 4.2.8 After the last sub-sample is collected, gently swirl the composite container for approximately one minute, drain the sample into individual containers, and seal the containers with Teflon-lined caps.
- 4.2.9 Attach a completed label, record all data in the field logbook, and complete the chain of custody (COC) form per SOP-002. See Section 4.3-Table 1 for the list of analytical parameters.
- 4.2.10 Prepare the sample for shipment to the laboratory per SOP-001.
- 4.2.11 Unscrew the T-handle and disengage the locking block. Clean the coliwasa by rinsing it with a non-phosphorus laboratory grade detergent such as Liquinox followed by several rinses with deionized water.
- 4.3 ANALYTICAL PARAMETERS

Table 1 presents the analytical parameters that will be listed on the COC.

TABLE 1
TREATED WATER DISCHARGE CRITERIA

| PARAMETER | DISCHARGE LIMIT (mg/l) | Holding Time |
|------------------|---------------------------------------|-------------------------|
| pH | 6.0-9.0 (units) | 24 hours |
| BOD | 81 | 48 hours |
| COD | 568 | 28 days |
| Sulfur (Sulfide) | 0.6 | 7 days |
| Phosphorus | 4 | 28 days |
| Ammonia as N | 23 | 28 days |
| Oil and Grease | 31 | 28 days |
| Phenolics | 0.7 | 28 days |
| TSS | 62 | 7 days |
| Copper | 0.093 | 6 months |
| Volatiles * | * | 14 days |
| Semivolatiles * | * | 7 days |

*It is not necessary to separately list the individual volatile and semi-volatile compounds on the COC. Brio management should make prior arrangements with the laboratory to analyze treated water samples for the following organic compounds:

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VOCs

- 1,1,2-trichloroethane (0.054)
- 1,2-dichloroethane (0.211)
- Vinyl Chloride (0.268)
- Methylene Chloride (0.089)

Semi-volatiles

- Bis(2-chloroethyl)ether (0.757)
- Total Carcinogenic PNAs (0.350)
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Benzo(k)fluoranthene
 - Benzo(a)pyrene
 - Dibenzo(a,h)anthracene
 - Indeno(1,2,3,c,d)pyrene
- Total Noncarcinogenic PNAs (0.470)
 - Acenaphthene
 - Anthracene
 - Chrysene
 - Fluoranthene
 - Fluorene
 - Phenanthrene
 - Pyrene

(discharge limit – mg/l)

4.4 LABORATORY PRELIMINARY AND FINAL REPORTS

Brio management should make prior arrangements with the laboratory to provide a preliminary report to be faxed to the Brio Site within three working days of sample receipt at the laboratory. The preliminary report will contain the following:

- Site name
- Field sample ID
- Laboratory sample ID
- COC copy showing receipt at laboratory

and

For each parameter in Table 1:

- Analytical result with units
- Practical quantitation limit with units
- Discharge limit with units

The laboratory will deliver a final report to the Brio Site approximately 30 days following analysis. The final report will provide data that will allow a third party to validate the report.

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5.0 SOP-004: GROUNDWATER SAMPLING PROCEDURE USING PASSIVE DIFFUSION BAG SAMPLERS FOR VOCs

The purpose of this SOP is to provide guidance for the collection of VOCs in groundwater from monitoring wells using a Passive Diffusion Bag Sampler (PDB). Table 2 presents the Maximum Contaminant Level (MCL) and holding time for the Fifty Foot Sand Zone (FFSZ) groundwater volatile list.

Note that PDB samplers can only be used for sampling VOCs. The following procedure may be modified as necessary per the manufacturers' recommendations to accommodate various models of PDBs.

5.1 EQUIPMENT

- Field logbook
- Water proof pens
- Field data sheets
- Water level indicator
- Passive diffusion bag sampler (PDB) with sleeve and designated weights
- Sample bottles (40-ml VOA vials)
- Sample bottles (1L amber)*
- Nylon cord
- Chain-of-custody forms/custody seals
- Deionized water
- Shipping containers
- Stainless steel weights
- Tie wraps
- Plastic sheeting
- Scissors or knife
- Non-phosphate soap (Liquinox)
- Ziplock bags
- Paper towels
- 5-Gallon bucket
- Appropriate PPE
- As-built diagrams of monitoring wells

* Only if semivolatiles are required

5.2 PROCEDURE

- 5.2.1 As a minimum, utilization of standard OSHA Level D personal protection equipment (PPE) will be required, as prescribed by the site specific Health and Safety Plan. Air monitoring with a hand held organic vapor monitor will be conducted in the breathing zone and in well casing during sampling. The results of hand held monitoring will be documented on the field data sheet presented at the end of this procedure.
- 5.2.2 Use the field data sheet presented in Figure 1 to record sampling information during PDB placement and retrieval. Save the field data sheet for inclusion in the sampling report.
- 5.2.3 Each PDB sampler will have a stainless-steel weight and may have an individual decontaminated sleeve. Prior to the sampling event, decontaminate the dedicated stainless-steel weight with a Liquinox solution and rinsed with distilled water. After rinsing, dry the weights with clean paper towels and place in a plastic bag, sealing to minimize that no outside contaminants are introduced prior to use during subsequent

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sampling activities.

- 5.2.4 Using a clean water level probe, measure the static water level and well depth. Compare the measured well depth with the reported well depth to the bottom of the well screen from the well construction records.
- 5.2.5 Attach the clean stainless-steel weight to the end of the line.
- 5.2.6 Calculate the distance from the bottom of the well, or top of the sediment in the well, up to the point where the PDB sampler is to be placed. The PDB should be placed near the center of the well screen.
- 5.2.7 Immediately prior to placing the weighted PDB sampler into the well rinse the PDB sampler with distilled water. The PDB sampler should be attached to the nylon line. PDB samplers can be attached using the following procedure:
 - a) Insert plastic cable through the knots/loop in the weighted line.
 - b) The designated holes punched at the ends of the bag can be used to attach the PDB sampler to the weighted line. Stainless steel spring clips or cable ties.
- 5.2.8 Carefully lower the PDB sampler down the well until the sampler is positioned near the mid-point of the well screen.
- 5.2.9 Secure the assembly in this position. A suggested method is to attach the weighted line to a hook on the inside of the well cap. Reattach the well cap.
- 5.2.10 Allow the PDB sampler to remain undisturbed for a period of at least two weeks as it equilibrates.
- 5.2.11 Remove the PDB sampler from the well by using the attached line. The PDB sampler should not be exposed to heat or agitated.
- 5.2.12 Examine the surface of the PDB sampler for evidence of algae, iron or other coatings, and for tears in the membrane. Record any unusual observations.
- 5.2.13 Detach and remove the PDB sampler from the weighted line. The nylon rope and weight may be reused in the same well if they are in good condition, otherwise, dispose of them according to Brio Site procedures.
- 5.2.14 Transfer the PDB sampler to the designated sampling area away from the well head. Using decontaminated scissors or other cutting devices, cut the corner of the PDB sampler and pour the water directly into three 40-ml VOA vials in a manner that minimizes water agitation.

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- 5.2.15 Cap each vial with a Teflon lined septum making sure that there are no bubbles in the vial.
- 5.2.16 Complete the sample labels and COC per SOP-002. List “Drinking Water Volatiles” (and Semivolatiles if required) for the analytical parameters. Table 2 presents the Drinking water analyte list and Maximum Contaminant Levels (MCLs).
- 5.2.17 Place the sample containers in a cooler with the COC containing wet ice immediately after collection and document the sample event in the Field Logbook per SOP-002.

TABLE 2
FFSZ GROUNDWATER DRINKING WATER LIST AND
MAXIMUM CONTAMINANT LEVELS (MCL)

| DRINKING WATER VOLATILE LIST ¹ | MCL (µg/l) |
|--|-----------------------|
| Benzene | 5 |
| Carbon Tetrachloride | 5 |
| Chlorobenzene | 100 |
| 1, 2-Dichlorobenzene (o-dichlorobenzene) | 600 |
| 1, 4-Dichlorobenzene (p-dichlorobenzene) | 75 |
| 1, 2-Dichloroethane | 5 |
| 1, 1-Dichloroethene | 7 |
| cis-1, 2-Dichloroethene | 70 |
| trans-1, 2-Dichloroethene | 100 |
| Methylene Chloride (Dichloromethane) | 5 |
| 1, 2-Dichloropropane | 5 |
| Ethylbenzene | 700 |
| Styrene | 100 |
| Tetrachloroethene | 5 |
| Toluene | 1000 |
| 1, 2, 4-Trichlorobenzene | 70 |
| 1, 1, 1-Trichloroethane | 200 |
| 1, 1, 2-Trichloroethane | 5 |
| Trichloroethene | 5 |
| Vinyl Chloride | 2 |
| Xylenes (Total) | 10000 |
| Total trihalomethanes (TTHMs) ² | 100 |

1 The holding time for volatiles is 14 days

2 Total trihalomethanes = Chloroform, Bromodichloromethane, Bromoform, and Dibromochloromethane

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FIGURE 1

**ANNUAL GROUNDWATER SAMPLING
PASSIVE DIFFUSION BAG METHOD
BRIO SUPERFUND SITE
HOUSTON, TEXAS**

Well ID:

PDB DEPLOYMENT

| Date | Time | PID/FID Reading | | Depth to Water (ft-toc) | Well TD (ft-toc) | Casing Dia (in) | Air Temp (°F) | Weather Conditions |
|------|------|-----------------|----------------|----------------------------|---------------------|--------------------|------------------|--------------------|
| | | Well Casing | Breathing Zone | | | | | |
| | | | | | | | | |

Sampler Initials:
Notes:

Top of PDB Depth (ft-toc):
PDB Length (in.):

PDB RETRIEVAL

| Date | Time | PID/FID Reading | | Depth to Water (ft-toc) | Well TD (ft-toc) | Casing Dia (in) | Air Temp (°F) | Weather Conditions |
|------|------|-----------------|----------------|----------------------------|---------------------|--------------------|------------------|--------------------|
| | | Well Casing | Breathing Zone | | | | | |
| | | | | | | | | |

Sampler Initials:
Notes:

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6.0 SOP-005: GROUNDWATER SAMPLING PROCEDURE USING LOW-FLOW-PURGE (MICRO-PURGE)

Micro purging is an approach to purging a well based on the observation that groundwater flows through the well screen in most formations with sufficient velocity to maintain an exchange with the formation water surrounding the well screen. By placing a pump within the screen interval and pumping at a low flow rate that does not induce drawdown of the water column, a representative sample of formation groundwater can be collected with minimal withdrawal of stagnant water. Ideally micro purging should be conducted in wells in which dedicated pumps have been installed. It is possible to use non-dedicated pumps if a sufficient amount of time is allowed for the water level to equilibrate following insertion of the pump.

Alternately, a peristaltic pump on the surface can be used for shallow wells by placing the opening of the inlet tubing within the screen interval. When using this approach, use disposable tubing to avoid cross contamination from well to well.

Table 3 presents the Maximum Contaminant Level (MCL) and holding times for the Fifty Foot Sand Zone (FFSZ) groundwater.

6.1 EQUIPMENT

- Field logbook
- As-built diagrams of monitoring wells
- Field data sheets
- Plastic sheeting
- Generator if using pump
- Gasoline for generator
- Air compressor for bladder pumps
- Pump (submersible or peristaltic)
- Stop watch
- Appropriate pump fittings (e.g., hose clamps, barbed fittings, etc.)
- Tubing for pump
- Control box (if necessary)
- Water level indicator
- Drums
- Marking pen for labeling drums
- Wrench for opening/sealing drums
- Appropriate PPE
- 1L Graduated cylinder
- Non-phosphate detergent (Liquinox)
- Sample bottles
- Distilled water

6.2 PROCEDURE

- 6.2.1 As a minimum, utilization of standard OSHA Level D personal protection equipment (PPE) will be required, as prescribed by the site specific Health and Safety Plan. Air monitoring with a hand held organic vapor monitor will be conducted in the breathing zone and in well casing during sampling. The results of hand held monitoring will be documented on the field data sheet presented in Figure 2.

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- 6.2.2 All non-dedicated equipment shall be decontaminated in with a Liquinox solution and rinsed with distilled water.
- 6.2.3 Using a clean water level probe, measure the static water level and record on the field data sheet (see the field data sheet at the end of this procedure).
- 6.2.4 Assemble the pump, hoses and safety cable. If using a non-dedicated submersible pump or a peristaltic pump, slowly lower the submersible pump or weighted peristaltic pump tubing into the well. The submersible pump or peristaltic pump tubing intake should be set at or just above the middle of the screened interval if the aquifer is under confined conditions (depth to water is above screen), or just below the air/water interface if the aquifer is under unconfined conditions (screened across the water table). Record the intake depth on the field data sheet.
- 6.2.5 If using a non-dedicated submersible pump or a peristaltic pump, allow sufficient time for the water level to equilibrate to obtain a representative sample.
- 6.2.6 Make connections between the pump and control box if using an air-lift or bladder pump (i.e., Well Wizard).
- 6.2.7 Use a ground fault interrupter (GFCI) between the generator and electrical devices.
- 6.2.8 Begin micro-purging the well. A well should be purged at or below its recovery rate, ideally less than 0.2 to 0.3 L/min.
- 6.2.9 Monitor the drawdown in the well using the water level meter and record the data on the field data sheet. If the drawdown exceeds 0.3 ft, then reduce the pumping rate to insure that drawdown does not exceed 0.3 ft.
- 6.2.10 Calibrate and connect the water quality meters to the discharge hose and measure the field parameters. Record the measurements on the field data sheet.
- 6.2.11 Repeat the field parameter measurements at a regular interval (i.e., every minute). Record the values in the field data sheet. Continue purging until the measured parameters stabilize for three successive readings.
- 6.2.12 If field parameters have not stabilized after three successive readings, continue taking measurements at three-minute intervals up to a maximum of five successive readings. If after five successive readings the parameters have not stabilized, an entry shall be made in the field data sheet indicating that sampling will be conducted without stabilized parameters.

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- 6.2.13 For volatile analysis, collect samples in three 40-ml VOA vials in a manner that minimizes water agitation. If semi-volatile analysis is necessary, collect samples in 1L amber glass bottles.
- 6.2.14 Cap each VOA vial with a Teflon lined septum making sure that there are no bubbles in the vial. Cap 1L bottles with Teflon lined lids.
- 6.2.15 Complete the sample labels and COC per SOP-002. List “Drinking Water Volatiles” (and Semivolatiles if required) for the analytical parameters. Table 2 (Section 5.0) presents the Drinking water analyte list and Maximum Contaminant Levels (MCLs).
- 6.2.16 Place the sample containers in a cooler with the COC containing wet ice immediately after collection.
- 6.2.17 Document the sample event in the Field Logbook per SOP-002.
- 6.2.18 Purge water should be containerized and transferred to the onsite water treatment plant for processing.

6.3 CAUTIONS AND INTERFERENCES

The primary goal in performing groundwater sampling is to obtain a representative sample of the groundwater body. Analysis can be compromised by field personnel in two primary ways: (1) taking an unrepresentative sample or (2) by incorrect handling of the sample. There are numerous ways of introducing foreign contaminants into a sample, and these must be avoided by following strict sampling procedures and utilizing trained field personnel.

In a non-pumping well, there will be little or no vertical mixing of the water, and stratification will occur. The well water in the screened section will mix with the groundwater due to normal flow patterns, but the well water above the screened section will remain isolated, become stagnant, and may lack the contaminants present in the groundwater. Persons sampling should realize that stagnant water may contain foreign material inadvertently or deliberately introduced from the surface resulting in an unrepresentative sample. To safeguard against collecting non-representative stagnant water, the following guidelines and techniques should be adhered to during sampling:

- Slowly lower sampling devices through the water column.
- To avoid resuspension of settled solids, total well depth and sediment thickness measurements should be taken after sampling is completed.

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- For wells that can be easily pumped or bailed to dryness, micro purging and low-flow sampling methods shall be considered.

Stainless steel, Teflon, and glass are the preferred materials of construction for samplers and evacuation equipment (bladders, pumps, tubing, etc.). The use of plastics such as PVC or polyethylene should be avoided if possible when analyzing for organics.

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FIGURE 2
MICRO-PURGE FIELD DATA SHEET

Date: _____

Well ID: _____

Location: _____

Sampler: _____

| Time | OVM Well Casing | OVM Breath. Zone | Depth to Water (ft-toc) | Well TD (ft-toc) | Casing Dia. (in.) | Intake Depth (ft-toc) | Dis. O ₂ (ppm) | Redox Potential (mv) | pH | Conduc. (μmho/cm) | Temp. °F °C | Comments |
|------|-----------------------|------------------------|----------------------------------|------------------------|-------------------------|-----------------------------|---------------------------------|----------------------------|----|----------------------|-------------------|----------|
| | | | | | | | | | | | | |
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Sample Time: _____

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7.0 SOP-006: SURFACE WATER SAMPLING PROCEDURE

The purpose of this SOP is to provide guidance for the collection of surface water samples. Surface water will be collected at the sample points and frequency specified in Section 8.0 of the Brio Site Maintenance, Operations, and Monitoring Plan, and tested for TCL volatiles.

7.1 EQUIPMENT

- Field logbook
- Water proof pens
- Sample bottles
- Shipping containers
- Appropriate PPE
- Chain-of-custody forms/custody seals

7.2 PROCEDURE

- 7.2.1 When possible, collect samples in a downstream to upstream direction.
- 7.2.2 Using adequate protective clothing, access the sample point by safe and appropriate means.
- 7.2.3 If it is necessary to stand in the stream, the sample must be collected upstream of the sampler.
- 7.2.4 Place an opened 40-ml VOA vial under the surface of the stream and allow the vial to fill while pointing the mouth of the vial upstream.
- 7.2.5 To minimize the dilution of the preservative in pre-preserved vials, take care to remove the vial from the stream as soon as the vial is full.
- 7.2.6 Cap the vial with a Teflon lined septum making sure that there are no bubbles in the vial.
- 7.2.7 Complete the sample labels and COC per SOP-002. List "TCL Volatiles" for the analytical parameters. Table 3 presents the Surface Water Performance Standards and Quality Goals.
- 7.2.8 Place the sample containers in a cooler with the COC containing wet ice immediately after collection.
- 7.2.9 Document the sample event in the Field Logbook per SOP-002.

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TABLE 3
SURFACE WATER

| Compound ¹ | SURFACE WATER PERFORMANCE STANDARDS | | BSTF SURFACE WATER QUALITY GOALS ² | |
|------------------------------|--|-------------------------------|--|-------------------------------|
| | Mud Gully (µg/l) | Clear Creek (µg/l) | Mud Gully (µg/l) | Clear Creek (µg/l) |
| 1, 1, 2-Trichloroethane | 4,180 | 41.8 | 3020 | 302 |
| 1, 2-Dichloroethane | 20,000 | 1,794 | 739 | 73.9 |
| 1, 1-Dichloroethene | 8,740 | 87.4 | 58.4 | 5.84 |
| Vinyl Chloride | 9,450 | 94.5 | 4150 | 415 |

1 The holding time for volatiles is 14 days

2 These levels are based on the Texas Commission on Environmental Quality (TCEQ) surface water quality standards as adopted in August 2002, and based on calculations presented in the Texas Total Maximum Daily Load (TMDL) Program

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8.0 SOP-007: ROUTINE AND EVENT BASED AIR MONITORING PROCEDURE**8.1 PURPOSE**

The purpose of this standard operating procedure (SOP) is to provide a procedure for routine air monitoring of onsite work areas and event-base fence line air monitoring.

8.2 SUMMARY

The following sequence is a summary of actions that will occur to implement this procedure:

Hand held organic vapor analyzers (OVA) and particulate monitors will be used to monitor events that require Worker Health and Safety Plan (WHASP) location specific air monitoring. WHASP procedures are summarized in this procedure.

If there is an event, mitigate the release, take OVA readings, and notify BSTF management (or others as designated by the BSTF management). If there are noticeable odors and OVA levels are below action levels, notify management.

If the readings are above action levels, and the BSTF management authorizes fence line monitoring, then procedures provided herein will be followed. In general, the procedure calls for a SUMMA canister to be deployed downwind at the fence line. The SUMMA canister will collect air for a 24-hour period. The SUMMA canister will be sent to a laboratory for testing. The event and test results will be provided to the USEPA.

8.3 ROUTINE AIR MONITORING**8.3.1 Organic Monitoring**

Air quality monitoring will be conducted at active site areas including, but not limited to, roadways, decontamination areas, site construction areas, or release areas (known or suspected spills, leaking pipes or vessels, or odors), and other areas where work activities may present a potential for particulate or volatile emissions. Measurements above background levels for organic vapors or dust will be reported to BSTF management. Air monitoring results will be maintained onsite.

- 8.3.1.1 Instrumentation – Organic vapor levels will be monitored using an OVA at the beginning of and during active work (i.e., potential exposure to, or release of affected material).

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8.3.1.2 Locations – Organic vapor levels will be monitored in the work area, at work area access points, and at the down wind fence line relative to the potential event. The locations will be documented in such a manner that the information can be related to the operations and events in progress. See Figure 3 for the Daily Air Monitoring Report form.

8.3.1.3 Action Levels – Table 4 presents the action levels for various locations onsite.

TABLE 4
VOLATILE EMISSION RESPONSE

| Location | Action Level | Response⁴ |
|--------------------------------|--|---|
| Immediate Work or Release Area | 5 muab ¹ above background for 15 seconds ² | Mitigate release and notify BSTF management |
| Immediate Work or Release Area | 1 muab above background for 1 minute ² | Mitigate release and notify BSTF management |
| Fence Line | 1 muab above background for 5 minutes ³ | Mitigate release and notify BSTF management |

1 muab = measurement unit above background.

2 WHASP Section 4.1.3.

3 AQMS Performance Criteria Table 5 and the Spill/Volatile Emission Release Contingency Plan and Emergency Notification Plan (SVERCP/ENP) Section 4.2.3.

4 Mitigation per WHASP and SVRCP/ENP procedures.

8.3.1.4 Calibration Documentation – Documentation of the pre- and post-use calibration of the unit (according to the manufacturer's directions) will be maintained onsite. See Figure 4 for the Calibration and Maintenance Log.

8.3.2 Particulate Monitoring

Dust levels will be monitored at the beginning of and during site work that is likely to cause dusty conditions. Depending upon soil conditions and previous monitoring results, the sampling frequency will be evaluated and modified by the Safety and Operations Supervisor (SOS).

8.3.2.1 Instrumentation – Dust levels will be monitored using direct reading instrumentation.

8.3.2.2 Locations – Locations will be documented in such a manner that the information can be related to the operations in progress. See Figure 3 for the Daily Air Monitoring Report form.

8.3.2.3 Action Levels – Table 5 lists the dust emission action level and response.

SAMPLING AND ANALYSIS-QA/QC PLAN

TABLE 5
DUST EMISSION RESPONSE

| Action Level | Response |
|---|-------------------------------|
| 5 mg/m ³ sustained for 60 seconds ¹ | Mitigate release ² |

1 ½ the ACGIH TLV of 10 mg/m³ – WHASP Section 4.2.1

2 Corrective action will be at the direction of BSTF management SOS, or QA Officer.

8.3.2.4 Calibration Documentation – Documentation of the pre- and post-use calibration of the dust monitoring unit (according to the manufacturer's directions) and a record of the daily zeroing will be maintained onsite. See Figure 4 for the calibration form.

8.4 EVENT-BASED 24-HOUR FLAAQS SAMPLING AT FENCELINE (SUMMA CANISTER SAMPLING)

8.4.1 Equipment

The following equipment will be maintained onsite. Portable equipment will be maintained in the water treatment control room.

- Windsock or meteorological station with wind speed and wind direction sensors.
- SUMMA canister – six-liter (6L) – cleaned and evacuated by a laboratory according to the EPA TO-14 method. The storage pressure should be 30" Hg, but no less than 25" Hg.
- Flow controller – cleaned by a laboratory according to EPA TO-14 method. The controller shall be set by the laboratory to provide a 24-hour continuous sample based on a five-liter (5L) sample. This will cause the canister to collect approximately five-liters (5L) of sample without allowing the sample flow to drop too low or allowing the canister to reach ambient pressure. The controller shall have a frit filter on the inlet to remove particulates from the sample stream.
- Pressure gauge – range of 0 to 30" Hg.
- Stainless sample inlet (1/4") – 180° bend at the entrance will point toward the ground. A ¼" nut at the opening will prevent rain from entering the inlet.
- Wrenches for connecting and disconnecting fittings.

8.4.2 SUMMA Canister Deployment

8.4.2.1 BSTF management shall be notified when onsite personnel recognize events that involve noticeable air emissions or OVA readings that exceed Table 4 action levels. BSTF management will decide whether or not to deploy sample collection equipment.

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- 8.4.2.2 If BSTF management decides that sample collection is necessary, observe the windsock or wind direction indicator, and select a downwind location at the fence line from the event (see Figure 5- page 2 for the Brio Site Fence Line drawing). If there is no wind, BSTF management will select the sampling location.
- 8.4.2.3 Transport the SUMMA canister, flow controller, pressure gauge, and sample inlet to the sample location.
- 8.4.2.4 Remove the protective cap from the valve inlet and connect the flow controller, pressure gauge, and sample inlet to the SUMMA canister valve. The fittings should be very snug, but do not over tighten.
- 8.4.2.5 Open the canister valve fully to begin sampling.
- 8.4.2.6 Record the date, time, location, and description of the event on the Event Based Air Monitoring Sample Form.
- 8.4.2.7 Record the wind direction on the sample form drawing with an arrow pointing downwind (the direction that the wind is blowing toward). Label the arrow "START".
- 8.2.4.8 Initial the sample form and record the sample start date, time. Record the sample location on the sample form drawing.
- 8.4.2.9 Record the canister ID, flow regulator ID, and beginning canister pressure on the sample form. Record the sample ID on the sample form. The sample ID will be in the form of "AIR MM/DD/YY" using the sample start date.
- 8.4.2.10 The sample collection shall end after 24-hours have elapsed from the beginning of sampling; however, do not allow the canister pressure to reach ambient pressure (keep gauge reading above 0" Hg).
- 8.4.2.11 Close the canister valve (do not over tighten) and replace the protective cap on the valve inlet.
- 8.4.2.12 At the end of sample collection, initial the sample form and record the sample end date and time on the form.
- 8.4.2.13 Record the ending canister pressure on the sample form.
- 8.4.2.14 Record the ending windsock direction on the sample form drawing with an arrow pointing downwind (the direction that the wind is blowing toward). Label the arrow "END". If available, attach a copy of wind direction data from an on-site meteorological station.

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- 8.4.2.15 Disconnect the flow controller, pressure gauge, and sample inlet from the canister.
- 8.4.2.16 Fill out a sample label and COC per SOP-002. Table 6 presents the analytes of interest. The sample label will be a tag attached to the canister.
- 8.4.2.17 Document the sample event in the Field Logbook per SOP-002.
- 8.4.2.18 Notify the laboratory that the sample is ready for pickup. Send the flow controller, pressure gauge, and stainless sample inlet to the laboratory for cleaning.
- 8.5 US EPA REPORTING

The US EPA will be notified of events requiring SUMMA canister fence line monitoring.

Event based fence line air monitoring results will be reported to the USEPA following receipt and validation of laboratory data and will be summarized in the Annual Effectiveness Report. The report will compare the laboratory results to the Brio Site Fence Line Ambient Air Quality Standards (FLAAQS). Table 6 lists the FLAAQS compounds and standards.

TABLE 6
BRIO SITE FLAAQS

| FLAAQS COMPOUND * | STANDARD CONCENTRATION (ppb) |
|--------------------------|---|
| Vinyl Chloride | 690 |
| Methylene Chloride | 1100 |
| 1,2-Dichloroethane | 200 |
| Benzene | 50 |
| 1,1,2-Trichloroethane | 656 |

* The holding time for TO-14 analysis is 14 days

FIGURE 3
BRIO SUPERFUND SITE DAILY AIR MONITORING REPORT



FIGURE 4
CALIBRATION AND MAINTENANCE LOG

[illegible]

SAMPLING AND ANALYSIS-QA/QC PLAN

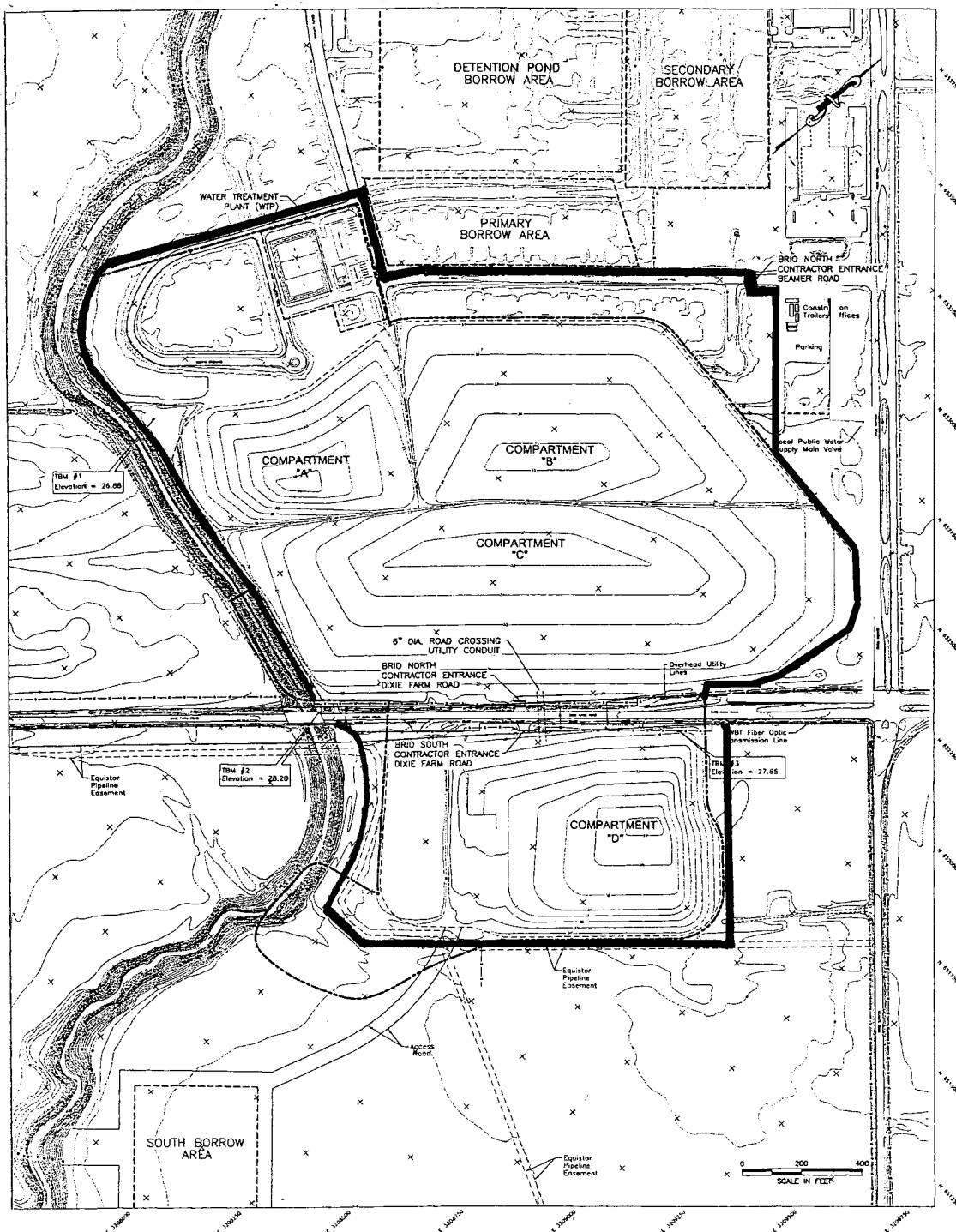
FIGURE 5
EVENT BASED AIR MONITORING SAMPLE FORM

| | |
|---|--|
| EVENT: Date: _____ Time: _____ Description: _____ _____ _____ _____ _____ _____ See page 2 for location of event | |
| SAMPLE START: Date: _____ Time: _____ Sample ID: _____ Start Pressure: _____ ("Hg) See page 2 for start wind direction | |
| <div style="display: flex; justify-content: space-between;"><div>Date: _____ Time: _____ End Pressure: _____ ("Hg) See page 2 for end wind direction</div><div>Initials: _____ Canister SN: _____ Flow Regulator SN: _____</div></div> | |

Comments:

SAMPLING AND ANALYSIS-QA/QC PLAN

FIGURE 5 (continued)
EVENT BASED AIR MONITORING SAMPLE FORM



FENCE LINE —

Event ⊙

Sample Location *

Wind Direction →

BRIO SITE TASK FORCE
BRIO SITE FENCE LINE

SAMPLING AND ANALYSIS-QA/QC PLAN

9.0 SOP-008: SCHEDULED FENCE LINE AIR MONITORING PROCEDURE**9.1 PURPOSE**

The purpose of this standard operating procedure (SOP) is to provide a procedure for scheduled fence line air monitoring at the Brio Site.

9.2 SUMMARY

Scheduled fence line air monitoring consists of concurrently collecting six 24-hour samples at the site perimeter. Figure 6 shows the locations of the air monitoring sample points. After the sample period is complete, the canisters will be sent to a laboratory to be analyzed for site constituents. Results will be compared to FLAAQS shown in Table 6 in Section 8. The sampling frequency is annual.

9.3 EQUIPMENT

The following equipment will be utilized for scheduled fence line air monitoring:

- Windsock or meteorological station with wind speed and wind direction sensors.
- SUMMA canister – six-liter (6L) – cleaned and evacuated by a laboratory according to the EPA TO-14 method. The storage pressure should be 30” Hg, but no less than 25” Hg.
- Flow controller – cleaned by a laboratory according to EPA TO-14 method. The controller shall be set by the laboratory to provide a 24-hour continuous sample based on a five-liter (5L) sample. This will cause the canister to collect approximately five-liters (5L) of sample without allowing the sample flow to drop too low or allowing the canister to reach ambient pressure. The controller shall have a frit filter on the inlet to remove particulates from the sample stream.
- Pressure gauge – range of 0 to 30” Hg.
- Stainless sample inlet (1/4”) - 180° bend at the entrance will point toward the ground. A 1/4” nut at the opening will prevent rain from entering the inlet.
- Wrenches for connecting and disconnecting fittings.

9.4 SUMMA CANISTER DEPLOYMENT

9.4.1 Transport the SUMMA canister, flow controller, pressure gauge, and sample inlet to the sample locations located in Figure 6.

9.4.2 Remove the protective cap from the valve inlet and connect the flow controller, pressure gauge, and sample inlet to the SUMMA canister valve. The fittings should be very snug, but do not over tighten.

9.4.3 Open the canister valve fully to begin sampling.

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- 9.4.4 Record the date, time, and location on the Scheduled Fence Line Air Monitoring Sample Form presented in Figure 7.
- 9.4.5 Record the windsock direction on the sample form drawing with an arrow pointing downwind (the direction that the wind is blowing toward). Label the arrow "START".
- 9.4.6 Record the canister ID, flow regulator ID, and beginning canister pressure on the sample form. Record the sample ID on the sample form.
- 9.4.7 The sample collection shall end after 24-hours have elapsed from the beginning of sampling; however, do not allow the canister pressure to reach ambient pressure (keep gauge reading above 0" Hg).
- 9.4.8 Close the canister valve (do not over tighten) and replace the protective cap on the valve inlet.
- 9.4.9 At the end of sample collection, initial the sample form and record the sample end date and time on the form.
- 9.4.10 Record the ending canister pressure on the sample form.
- 9.4.11 Record the ending windsock direction on the sample form drawing with an arrow pointing downwind (the direction that the wind is blowing toward). Label the arrow "END". If available, attach a copy of wind direction data from an on-site meteorological station.
- 9.4.12 Disconnect the flow controller, pressure gauge, and sample inlet from the canister.
- 9.4.13 Fill out a sample label and COC per SOP-002. Table 6 in Section 8 presents the analytes of interest. The sample label will be a tag attached to the canister.
- 9.4.14 Document the sample event in the Field Logbook per SOP-002.
- 9.4.15 Notify the laboratory that the sample is ready for pickup. Send the flow controller, pressure gauge, and stainless sample inlet to the laboratory for cleaning.
- 9.5 US EPA REPORTING

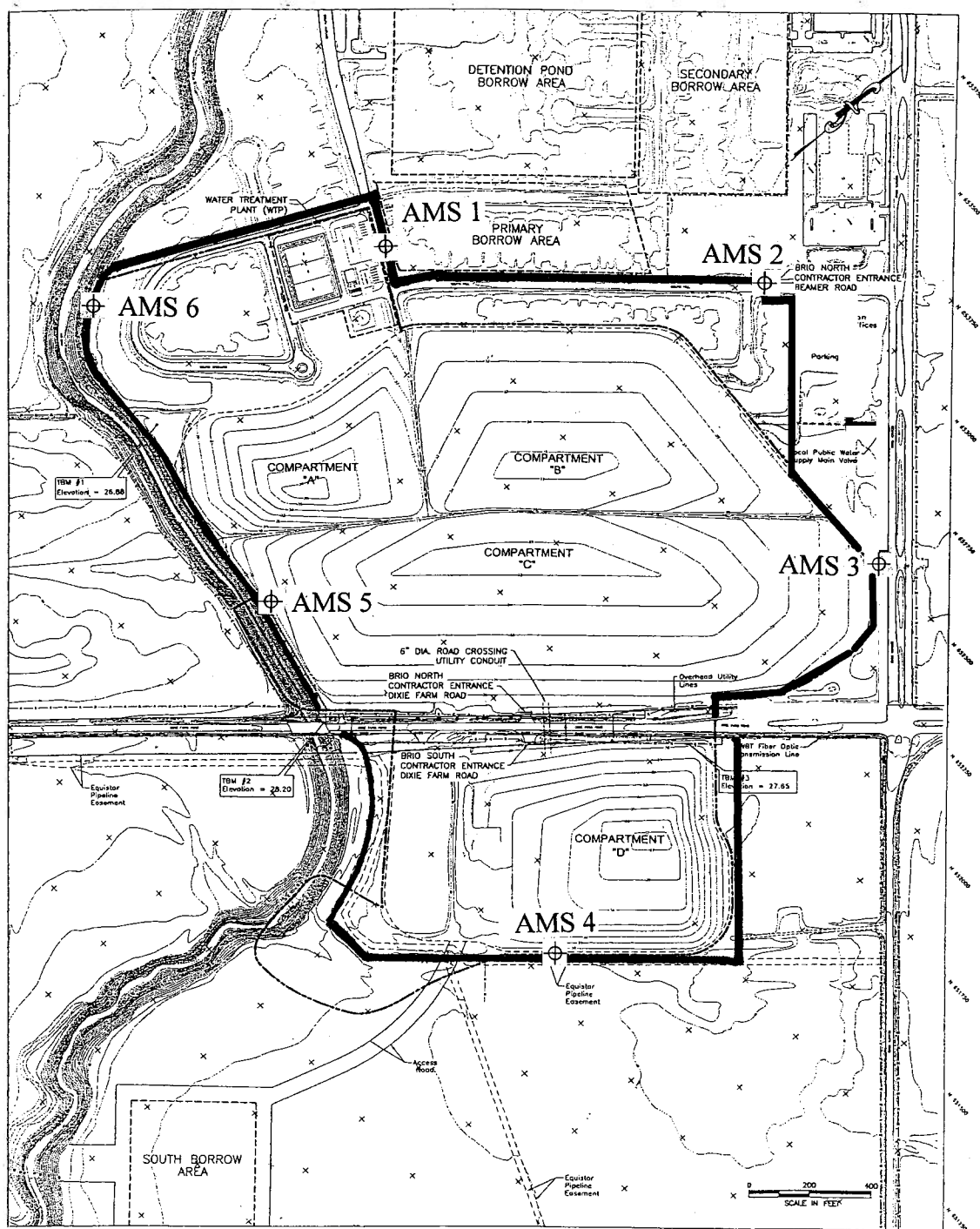
The USEPA will be notified if any of the scheduled fence line air monitoring results exceed the FLAAQS (Table 6, Section 8) as soon as the laboratory reports are validated. These results also appear in the Annual Effectiveness Report to the USEPA. If the FLAAQS are not exceeded for a given sampling event, then the

SAMPLING AND ANALYSIS-QA/QC PLAN

results will only included in the Annual Effectiveness Report to the USEPA.

SAMPLING AND ANALYSIS-QA/QC PLAN

FIGURE 6
SCHEDULED FENCELINE AIR MONITORING SAMPLE LOCATIONS



SAMPLING AND ANALYSIS-QA/QC PLAN

FIGURE 7
SCHEDULED FENCELINE AIR MONITORING SAMPLING FORM
 (See attached for full-size form)

| Sample Location | AM-1 | AM-2 | AM-3 | AM-4 | AM-5 | AM-6 |
|----------------------|------|------|------|------|------|------|
| Start Date | | | | | | |
| Start Time | | | | | | |
| Start Pressure ("Hg) | | | | | | |
| Canister ID | | | | | | |
| Flow Controller ID | | | | | | |
| Start WD (sect) | | | | | | |
| Start Initials | | | | | | |
| End Date | | | | | | |
| End Time | | | | | | |
| End Pressure ("Hg) | | | | | | |
| Canister ID | | | | | | |
| Flow Controller ID | | | | | | |
| End WD (sect) | | | | | | |
| End Initials | | | | | | |
| Comments | | | | | | |

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10.0 SOP-009: NSCZ GROUNDWATER GRADIENT CONTROL MONITORING PROCEDURE

The purpose of this SOP is to provide guidance for monitoring groundwater level elevations in the NSCZ. Piezometers have been installed in arrays to provide a means to measure groundwater levels.

In order to provide meaningful measurements, all piezometers within a given array will be measured within a short period of time before piezometers in other arrays are measured.

Each array will be measured as a minimum on a monthly basis.

10.1 EQUIPMENT

- Water level probe
- Organic vapor monitor
- NSCZ Plume Management form
- Non-phosphate soap (Liquinox)
- Rinse water
- Paper towels

10.2 PROCEDURE

10.2.1 As a minimum, utilization of standard OSHA Level D personal protection equipment (PPE) and nitrile gloves will be required, as prescribed by the site specific Health and Safety Plan. Air monitoring with a hand held organic vapor monitor will be conducted in the breathing zone and in well casing during sampling. The results of hand held monitoring will be documented on the Daily Site Air Monitoring Report presented in Section 8.0.

10.2.2 Figure 8 presents the location of the piezometers.

10.2.3 The NSCZ Plume Management form presented in Figure 9 will be used to record the groundwater level data.

10.2.4 The water level probe used to measure NSCZ groundwater elevations will be dedicated for that use. DO NOT use the NSCZ probe to measure water levels in the FFSZ wells.

10.2.5 Using the water level probe, measure the water level from the top of case in each piezometer within a given array. Measure all piezometers within an array before moving on to the next array.

SAMPLING AND ANALYSIS-QA/QC PLAN

10.2.6 Record the groundwater levels on the NSCZ Plume Management form. Initial and date the reading.

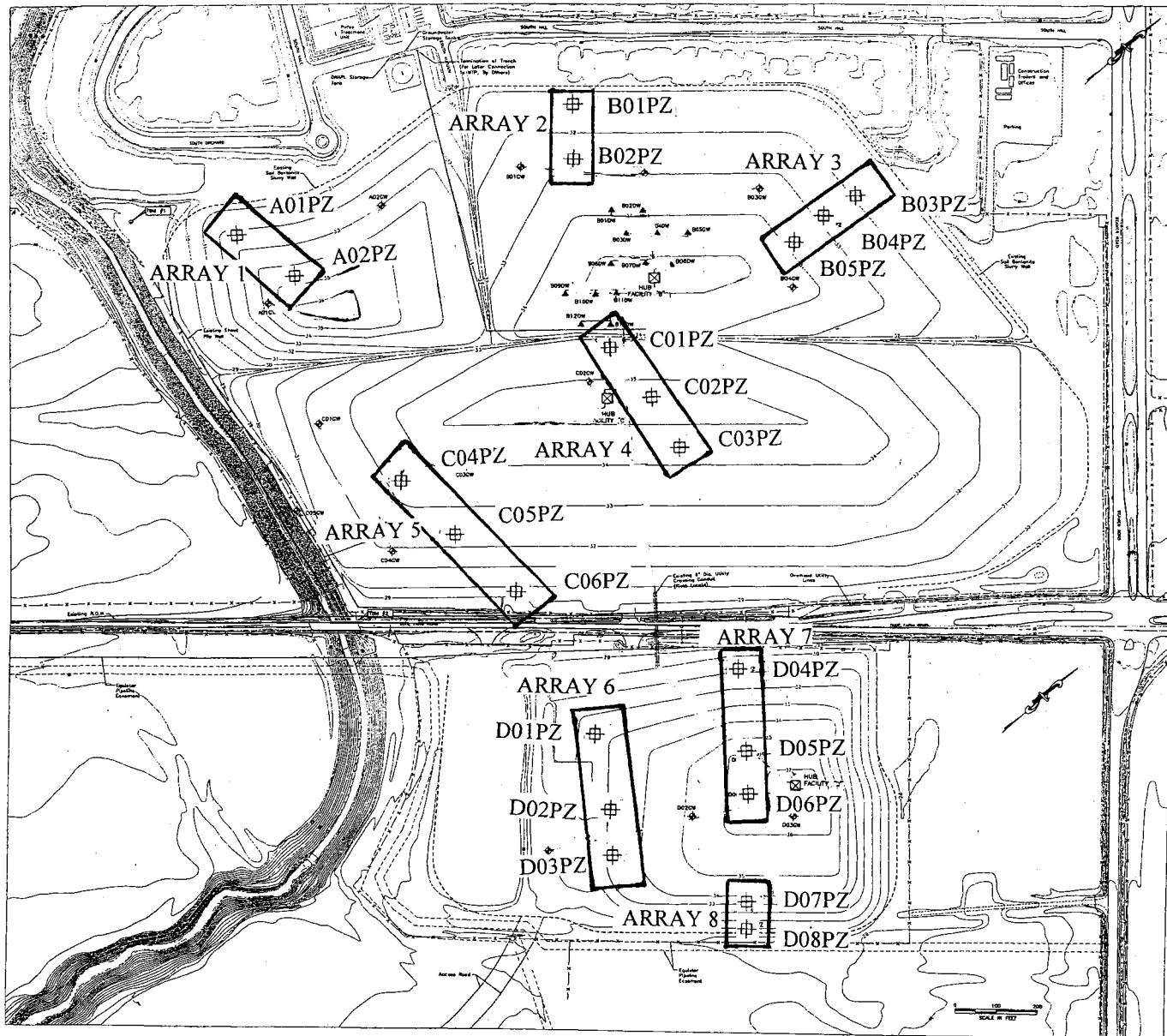
10.5.7 Subtract the water level from the top of case elevation listed on the NSCZ Plume Management form and record the result under the "GW ELEVATION" column.

In order to reduce the amount of affected groundwater on the probe, avoid lowering the probe lower than necessary to achieve a reading. Clean the water level probe with non-phosphate soap, rinse with water, and wipe dry with a paper towel.

10.2.9 Any modifications to a piezometer that causes the top of case elevation to change will be reason to re-survey the top of case elevation and update the NSCZ Plume Management form with the new elevation.

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FIGURE 8
NSCZ GROUNDWATER PIEZOMETER LOCATIONS



⊕ Piezometer

⊕ ⊕ ⊕ Array

SAMPLING AND ANALYSIS-QA/QC PLAN

**FIGURE 9
NSCZ PLUME MANAGEMENT FORM**

| NSCZ PLUME MANAGEMENT | | | | | |
|------------------------------|-------------------|--|---|-----------------------------------|--|
| ARRAY # | PIEZOMETER | DATE (mm/dd/yy) and PERSONNEL | (A) DEPTH of GW (feet-TOC) | (B) TOC (feet msl) | (B-A) GW ELEVATION (feet msl) |
| 1 | A01PZ | | | | |
| | A02PZ | | | | |
| 2 | B01PZ | | | | |
| | B02PZ | | | | |
| 3 | B03PZ | | | | |
| | B04PZ | | | | |
| | B05PZ | | | | |
| 4 | C01PZ | | | | |
| | C02PZ | | | | |
| | C03PZ | | | | |
| 5 | C04PZ | | | | |
| | C05PZ | | | | |
| | C06PZ | | | | |
| 6 | D01PZ | | | | |
| | D02PZ | | | | |
| | D03PZ | | | | |
| 7 | D04PZ | | | | |
| | D05PZ | | | | |
| | D06PZ | | | | |
| 8 | D07PZ | | | | |
| | D08PZ | | | | |

SAMPLING AND ANALYSIS-QA/QC PLAN

BRIO SITE TASK FORCE**ADDENDUM TO THE MAINTNANCE, OPERATIONS, OPERATIONS AND
MONITORING PLAN
SAMPLING AND ANALYSIS – QA/QC PLAN****SECONDARY CONTAINMENT FLUID HANDLING PROCEDURE
SOP-010****1.0 SCOPE**

This standard operating procedure (SOP) describes the procedure for handling rainwater or any other water or fluids that collect in designated areas or devices that have a potential to contaminate the water.

2.0 AREAS OF CONCERN

This procedure applies to the designated areas below:

- T-212/T218 secondary containment slab
- DNAPL loading ramp and recessed pipe vault
- Water Treatment Plant (WTP)/Purus secondary containment slab
- T-200 vault
- Secondary piping systems within the Groundwater/DNAPL Collection System and WTP
- Hub Facilities B, C, and D slabs
- Any temporary secondary containment areas or devices
- Any permanent secondary containment areas or devices installed in the future

3.0 PROCEDURE

1. Rainwater, wash water, or any other water that collects in the areas and devices listed in Section 2.0 will not be discharged to the environment without prior testing, passing the Brio Site Discharge Criteria listed in the Brio Site Consent Decree, and approval of the Brio Site Manager. The Discharge Criteria are presented in Table 1. This water will be discharged to the environment through dedicated clean pumps and hoses/piping.
2. Rainwater, wash water, or any other water that collects in the areas and devices listed in Section 2.0 may be transferred to Tank T-212 for processing through the WTP. This water will normally be commingled with water from other sources, treated, and will be tested prior to discharge to the environment. All treated water must pass the Discharge Criteria listed in Table 1 and be approved by the Brio Site Manager prior to discharge to the environment.

SAMPLING AND ANALYSIS-QA/QC PLAN

3. Rainwater, wash water, or any other water that collects in the areas and devices listed in Section 2.0 may be transferred from one containment area or device to another without prior testing or meeting the Discharge Criteria.
4. Rainwater, wash water, or any other water that collects in the areas and devices listed in Section 2.0 may be left in secondary containment areas or devices to evaporate, subject to adequate freeboard, and the air monitoring procedures, requirements, and limits contained in the Brio Site Worker Health and Safety Plan (WHASP) and the Brio Site Maintenance, Operations, and Monitoring Plan (MOM).
5. Non-aqueous fluids that collect in the areas and devices listed in Section 2.0 will be handled appropriately based on the chemical composition of the material. These materials will not be discharged to the environment.
6. All reasonable attempts will be made to control and retain rainwater, wash water, or any other water that collects in the areas and devices listed in Section 2.0 during heavy storm events.
7. The EPA Project Manager will immediately be notified of the release to the environment of rainwater, wash water, or any other water from the areas and devices listed in Section 2.0 without prior testing, and passing the Discharge Criteria listed in Table 1.

SAMPLING AND ANALYSIS-QA/QC PLAN

TABLE 1
TREATED WATER DISCHARGE CRITERIA

| PARAMETER | DISCHARGE LIMIT (mg/l) | PQL (mg/l) |
|---|---------------------------------------|-----------------------|
| General Chemistry | | |
| pH | 6.0-9.0 (units) | n/a |
| BOD | 81 | 5 |
| COD | 568 | 20 |
| Sulfur (Sulfide) | 0.6 | 0.2 |
| Phosphorus | 4 | 0.1 |
| Ammonia as N | 23 | 4 |
| Oil and Grease | 31 | 10 |
| Phenolics | 0.7 | 0.2 |
| TSS | 62 | 5 |
| Metals | | |
| Copper | 0.093 | 0.010 |
| Volatiles | | |
| 1, 1, 2-Trichloroethane | 0.054 | 0.010 |
| 1, 2-Dichloroethane | 0.211 | 0.010 |
| Vinyl Chloride | 0.268 | 0.010 |
| Methylene Chloride | 0.089 | 0.010 |
| Semivolatiles | | |
| Bis(2-chloroethyl)ether | 0.757 | 0.020 |
| Total Carcinogenic PNAs ¹ | 0.350 (total) | 0.020 (each) |
| Total Noncarcinogenic PNAs ² | 0.470 (total) | 0.020 (each) |

2. Benzo(a)anthracene
 Benzo(b)fluoranthene
 Benzo(k)fluoranthene
 Benzo(a)pyrene
 Dibenzo(a,h)anthracene
 Indeno(1,2,3,c,d)pyrene

2. Acenaphthene
 Anthracene
 Pyrene
 Fluoranthene
 Fluorene
 Naphthalene
 Phenanthrene
 Chrysene

SAMPLING AND ANALYSIS-QA/QC PLAN

11.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**11.1 PURPOSE AND SCOPE**

The purpose of the Quality Assurance/Quality Control Plan (QAQCP) for the Brio Site is to identify testing, data quality objectives, records, and system administration. The QAQCP has been prepared to document the QA/QC measures that will be undertaken by the Brio Site Task Force (BSTF) and its contractors to provide a high level of quality to accomplish project objectives.

Chemical sampling and analyses will include ambient air, groundwater, surface water, and treated water. In addition to the periodic checks for compliance with this QAQCP, periodic checks for compliance with the Brio Site Standard Operating Procedures (SOPs) (Sections 2.0-10.0) will be performed. All results and reports generated through the QA/QC activities will be retained in the project record documents.

11.2 DISTRIBUTION

The Brio Site management is responsible for distribution of all documents relating to the project including this SAP-QAQCP and revisions.

The Brio Site management will maintain all document revisions. An original first issue of all documents will be maintained onsite. In addition, a current version of all MOM documents will be maintained onsite.

11.3 PROJECT ORGANIZATION AND RESPONSIBILITIES

The BSTF and its contractors are staffed with a team qualified and competent persons capable of providing the equipment and services required to implement the Brio Site MOM plan in a coordinated and timely manner to meet or exceed the MOM requirements. This section details QA/QC responsibilities of individuals representing the Brio Site. The Brio Site Organizational Chart is presented in Figure 10.

The BSTF and its contractors will:

- Provide facilities and qualified personnel and provide access to the work areas, as required
- Furnish labor and facilities to obtain and handle samples at the project site, perform inspections and analyses, and provide for storage and preservation (including refrigeration) of samples as necessary

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- Collect and deliver representative samples of materials that require analysis including air samples, water samples, and others as required in the MOM Plan. Procedures for collecting samples are presented in Sections 2.0 through 10.0
- Ensure that transportation and ultimate disposition of samples take place in accordance with the appropriate local, state and federal laws
- Provide written documentation and data management of the analytical and inspection results
- Provide results of representative split sampling to the Brio Site management as requested. Make provisions for and assist the USEPA in collecting split samples of onsite materials at their request
- Provide for regular maintenance and calibration of analytical equipment per factory specifications. This maintenance and calibration will be documented and included in the project record documents
- Provide for internal laboratory quality control. Normally five percent (1 in 20) of the total number of samples collected at the Brio Site will be devoted to internal quality control checks. In addition to precision and accuracy testing, reference and other standards will be analyzed as required by the methodology
- Provide for sample container preparation and preservation of samples
- Maintain internal written record keeping and chain of custody for samples
- Promptly submit copies of written reports of analytical results to the Brio Site management. Each report shall include the following:
 - (1) Date issued
 - (2) Project title and number
 - (3) Name, address, and telephone number of the analytical laboratory
 - (4) Signature of the laboratory QA Manager, laboratory project manager, or laboratory manager/director
 - (5) Date of analysis
 - (6) Sample number, identification, and location
 - (7) Results of all analyses, including detection limits

SAMPLING AND ANALYSIS-QA/QC PLAN

- (8) Promptly submit copies of any contractor's QC summary reports summarizing quality control experience and actions

11.3.1 Brio Site Management

All work performed at the site is under the direction of the Brio Site management. The Brio Site management's responsibilities are:

- Training field personnel for sampling and QC activities.
- Coordinating activities and efforts of the field and laboratory personnel in order to ensure efficient and effective project performance
- Coordinating and scheduling the project (determine when and where to move the crews, ensuring that proper equipment is at the site when crew arrives, and ensuring all necessary details are handled prior to crew moving to site, etc.)
- Assisting the field personnel with any on-site problems encountered (make arrangements for additional personnel if needed, additional or alternative types of equipment, operational problems, etc.)
- Reporting monitoring results to the BSTF and USEPA as required in the MOM Plan.
- Overall management of QA/QC program

11.3.2 Quality Assurance Manager

Many QA tasks can be performed offsite; therefore, the QA Manager may be an offsite contractor who visits the Brio Site as needed for QA oversight.

The QA Manager's responsibilities include:

- Preparation and maintenance of the QAQCP
- Monitoring for compliance with the QAQCP requirements
- Supporting the Brio Site management
- Coordinating contract laboratory and other technical services
- Auditing lab and systems performance
- Providing QA documentation to be used in Brio Site reports

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The QA Manager has the authority to reject data when associated QC data indicate questionable or non-defensible data. The QA Manager also has responsibility to inform BSTF management when it is found that the work being performed is not in compliance with the requirements of the QAQCP, the project specifications, or the Consent Decree.

The QA Manager is responsible for overseeing the QA/QC procedures associated with analytical and sampling methodologies. These responsibilities include, but are not limited to:

- Monitoring and assisting with performance of all sampling procedures
- Monitoring field or operations technicians
- Ensuring proper sample acquisition techniques are employed
- Reviewing sample log books
- Other QA functions outlined in the QA/QC Plan
- Reviewing and approving data generated by contract laboratories
- Performing inspections of the contract laboratories
- Coordinating all activities involving the laboratories if requested by BSTF management
- Coordinate with the contracted laboratories to make sure they are adequately supplied and maintained if requested by BSTF Management
- Reporting analytical data to the Brio Site management if requested by BSTF Management

11.3.3 Field or Operations Technicians

The field or operations technicians are responsible for:

- Following the procedures and requirements set forth in the MOM Plan and SAP-QAQCP.
- Decontaminating sampling equipment
- Sample collection
- Implementing the associated QC requirements

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- Documenting sampling activities

11.3.4 Safety and Operations Supervisor (SOS)

The Safety and Operations Supervisor (SOS) reports to the Brio Site management and is on site regularly to implement the Worker Health and Safety Plan and the Spill/Volatile Emission Release Contingency Plan/Emergency Notification Plan (SVERCP/ENP). The SOS's responsibilities are described in the WHASP and the SVERCP/ENP.

11.3.5 Contract Services

Analytical laboratories and/or other contractors may provide:

- QA oversight
- Sample Collection and documentation
- Analytical support for samples collected for chemical analysis
- Laboratory and field auditing
- Data validation
- Generation of Brio Site reports

11.3.6 Contract Laboratory Quality Assurance Manager

The contract laboratory QA Manager is responsible for providing explicit quality control instructions to the laboratory and for assessing laboratory performance. The contract QA Manager is responsible for assigning data qualifiers and informing the Technical Director of analytical problems based on quality control data. The QA Manager also maintains quality control data summaries and control charts. These summaries are presented to the Technical Director and the Corporate Quality Assurance Group for subsequent identification of systematic problems and their resolution.

11.3.7 Role of Contract Laboratories

A description of the contract laboratories and their areas of support includes:

- Analytical Laboratory - chemical analysis of soil, water, air, and waste samples

SAMPLING AND ANALYSIS-QA/QC PLAN

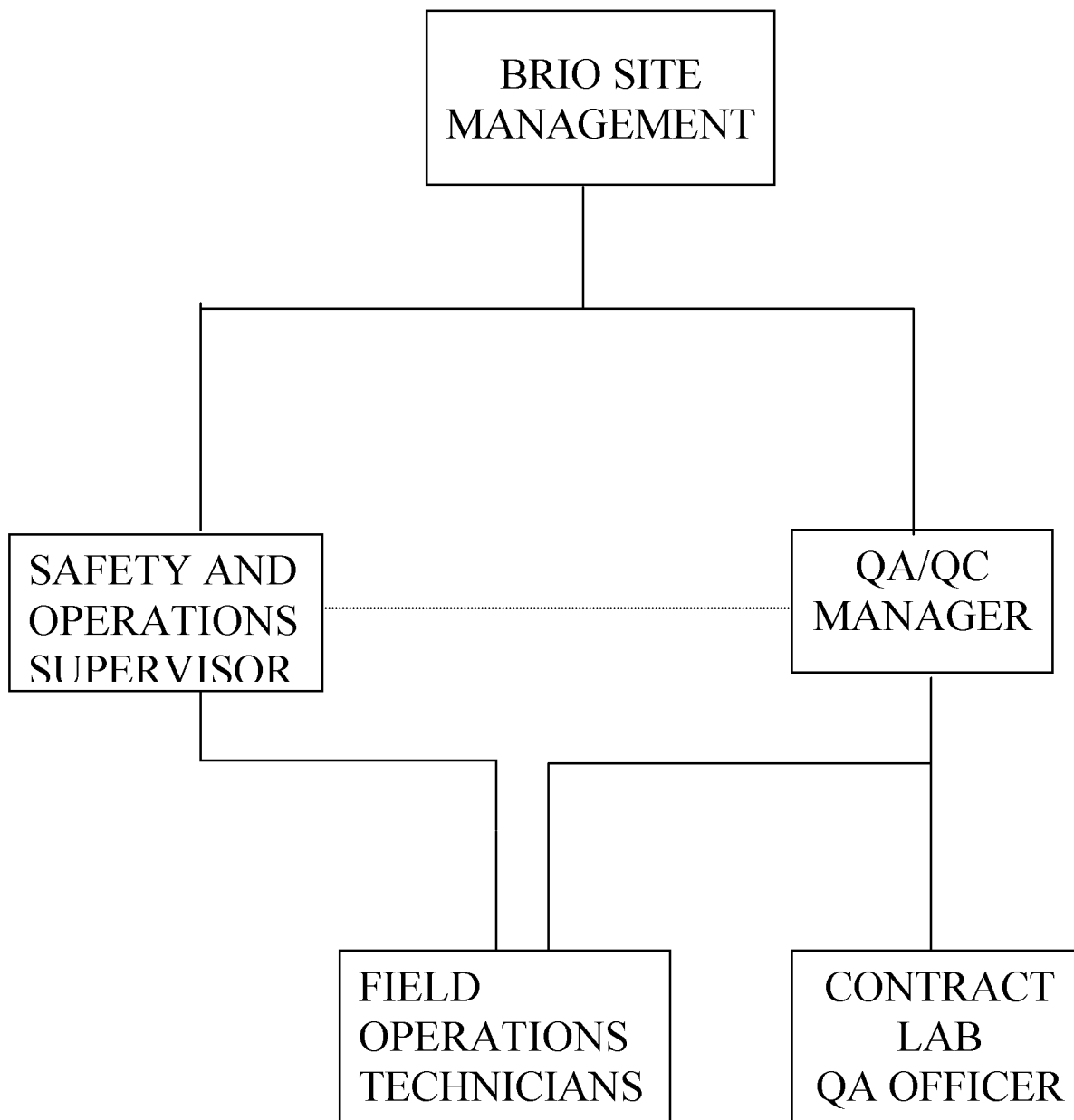
- Construction Testing/Inspecting - material testing to assure compliance with construction specifications and water well installation at the Brio Site.

The contract laboratories may be coordinated by the BSTF QA Manager who will provide additional review and coordination to facilitate continuity between the laboratory and the Brio Site. Audits by the Brio Site may be made to verify that the contract laboratories' performances meet the requirements set forth in the QA/QC Plan. Each laboratory will be given a copy of the QA/QC Plan to provide a thorough understanding of the project requirements.

In the event a contractor laboratory fails to provide services as required by the project specifications, the QA Manager may recommend that the Brio Site ceases to use that laboratory until the laboratory adequately demonstrates that it has come back into compliance. Should a laboratory fail to regain an acceptable level of compliance, the Brio Site may discontinue use of that laboratory. The laboratory may be used again after satisfactory corrective actions to resolve areas of noncompliance. In the unlikely event that a laboratory fails to provide service suitable to the project requirements, an alternate laboratory may be submitted for approval to the BSTF.

SAMPLING AND ANALYSIS-QA/QC PLAN

FIGURE 10
BRIO SITE ORGANIZATIONAL CHART



SAMPLING AND ANALYSIS-QA/QC PLAN

11.4 STANDARD OPERATING PROCEDURES

Standard operating procedures (SOPs) will be developed for both field activities and laboratory analysis. SOPs provide information on sample collection, documentation analysis, and reporting.

Sections 2.0 through 10.0 present the SOPs for field sampling and monitoring activities. The contract laboratory will develop SOPs for laboratory activities.

11.5 ANALYTICAL METHODS

The contract laboratory will use USEPA analytical methods for testing samples collected at the Brio Site. Table 7 presents the methods for the various Brio Site media.

TABLE 7
ANALYTICAL METHODS

| MEDIA | ANALYTICAL METHODOLOGY ¹ | MOM PLAN REFERENCE | SAP-QAQCP REFERENCE |
|---------------------|--|-------------------------------|--------------------------------|
| Treated Water | SW-846 | Table 2 | Table 1 |
| Surface Water | Modified SW-846 ² | Table 4 | Table 3 |
| FFSZ Groundwater | 524 | Table 7 | Table 2 |
| Air (SUMMA) | TO-14 | Table 3C | Table 7 |

1 See MOM Plan or SAP-QAQCP reference for individual parameters

2 Method SW-846 8260 modified to achieve detection limit for 1,1-dichloroethene of no greater than 0.50 µg/l

11.6 DATA QUALITY OBJECTIVES**11.6.1 Precision and Accuracy**

The BSTF will request the laboratory to perform precision and accuracy measurements on no fewer than five percent (1 in 20) of all Brio Site samples.

Precision and accuracy of data will take into consideration the guidelines established in the accuracy and precision sections of the appropriate methodology implemented. The laboratory will use precision and accuracy data to evaluate the usefulness of the analytical data and to develop corrective actions.

SAMPLING AND ANALYSIS-QA/QC PLAN

Methods lacking precision and accuracy data will be studied by the contract laboratory to develop criteria. Precision and accuracy data will be collected from the data for matrix spikes and matrix spike duplicates. (Additional sampling and analytical precision data will be collected from the analytical results for duplicate samples).

11.6.2 Blanks

Field, trip, and rinse blanks will be collected in order to verify that the sample collection, handling, and shipping process have not affected the quality of the samples. Blank samples will be collected, in same size and type of container, numbered, packaged, and sealed in the same manner as the other samples.

Field and Trip Blanks will only be analyzed for the volatile organic compounds.

Field blanks will be collected by pouring an appropriate amount of blank water into the appropriate sample containers while in the field at the location of an actual field sample. Field blanks will be collected at a frequency of 1 blank per 20.

Rinse blanks will be collected by pouring an appropriate amount of blank water into or through a decontaminated sampling device and into the appropriate sample containers. Rinse blanks will be collected at a frequency of 1 blank per 20 samples.

Trip blanks are samples of analyte-free media prepared by the laboratory and taken to the sampling site and returned to the laboratory unopened. Trip blanks will be prepared by the analytical laboratory using analyte-free water for liquid matrices or sand for solid matrices, and sent in the sample containers to the field sampling site. Trip blanks will be utilized at a frequency of 1 blank per 20 samples.

11.6.3 Field Duplicate Samples

Field duplicate samples will be collected to verify the laboratory and field procedures. They are identical samples collected at the same time, using the same methods; and are contained, preserved, and transported in the same manner as other samples to verify the reproducibility of the data. Field duplicates may be submitted blind to the laboratory performing the analyses. One duplicate per 20 samples will be submitted for analysis. A duplicate sample will be noted in the field logbook as a duplicate. Field duplicate samples may be assigned a unique sample identification that does not indicate to the lab that the sample is a quality assurance sample.

SAMPLING AND ANALYSIS-QA/QC PLAN

11.6.4 Analytical Completeness

The analytical completeness objective for compliance samples will be a minimum of 95% of all samples collected.

11.6.5 Sample Holding Times

Sample holding times will begin when the sample is collected and analysis will be implemented within the holding times indicated for each specific parameter as referenced in Table 8.

**TABLE 8
HOLDING TIMES**

| MEDIA | SAP-QAQCP REFERENCE |
|---------------------|--------------------------------|
| Treated Water | Table 1 |
| Surface Water | Table 3 |
| FFSZ Groundwater | Table 2 |
| Air (SUMMA) | Table 6 |

11.7 SAMPLE DOCUMENTATION AND CUSTODY

Sampling information will be recorded in a field logbook. Each sample bottle will be labeled, a chain of custody will be completed, and sample shipping containers will have custody seals. Section 3.0 presents the procedures for proper documentation and custody.

11.8 INSTRUMENT CALIBRATION

Calibration procedures for specific analytical methodologies will be included with the approved analytical laboratory's QA Program Plan, and the instrument operating manuals. Field equipment will be calibrated according to the manufacturer's recommendations.

11.9 TRAINING

Both laboratory and field personnel will be trained to perform the sampling or analysis tasks assigned to them. Training will emphasize QA/QC and will be documented.

SAMPLING AND ANALYSIS-QA/QC PLAN

11.10 DATA REDUCTION, VALIDATION, AND REPORTING

The laboratory will provide an analysis reporting system that is designed to produce complete, defensible, and accurate data. All samples collected for compliance purposes will be reported in a format that allows for validation by a third party. The FFSZ groundwater monitoring reports will be validated.

11.11 PERFORMANCE AND SYSTEMS AUDITS

The laboratory will be audited as required by BSTF management. The laboratory will develop and follow a QA/QC Plan. This QA/QC Plan will serve as a basis for establishing audit criteria.

11.12 FIELD AND LABORATORY PREVENTIVE MAINTENANCE

Prior to project activity utilizing equipment for the purpose of sampling and testing, all such equipment will be checked and calibrated, where applicable, by either standard procedures or instructions provided by the manufacturer of the equipment. Periodic maintenance will also be provided and will include routine servicing, cleaning, recalibration, and the replacement of parts as required.

Reference to equipment maintenance for the contract laboratory will be defined in the laboratory QA/QC Manual. In the event of an analytical and/or sampling equipment failure at the contract laboratory, any malfunction that could alter or result in the absence of analytical data that could be critical to making determinations regarding safety, health, environmental standards or project work changes will be made known to BSTF Management.

11.13 CORRECTIVE ACTION

The criteria for triggering corrective action will include (but is not limited to) unacceptable spike recoveries and duplicate results, loss of sample due to breakage or consumption during testing, missed holding times, improper preservation, improper documentation of sampling or analysis, and transcription errors on analytical reports.

The laboratory or personnel responsible for the corrective action will provide the QA/QC Laboratory Manager with a memorandum stating the problem and corrective action taken.

On-site corrective actions are necessary for actions on-site that are out of compliance with site policies, procedures, design requirements or this QA/QCP. The on-site out of compliance action and the corresponding corrective action will be documented and retained in the Brio Site

SAMPLING AND ANALYSIS-QA/QC PLAN

files.

The QA/QC Manager or his designee will approve on-site corrective actions and track unresolved on-site corrective actions until approved.

11.14 QUALITY ASSURANCE REPORTING

Compliance with this QA/QA Plan will be documented annually in the Annual Effectiveness Report. The following quality aspects will be reviewed for compliance throughout the year and summarized in the Annual Effectiveness Report:

- Analytical precision frequency and results
- Analytical accuracy frequency and results
- Analytical blank frequency and results
- Analytical detection limits
- Analytical completeness
- Analytical holding times
- Field sample collection
- Chain of custody documentation
- Field log documentation
- Laboratory and field calibration
- Field employee training
- Corrective action reports

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

APPENDIX D

**NSCZ GROUNDWATER RECOVERY WELL,
DNAPL RECOVERY WELL, AND
PIEZOMETER CONSTRUCTION REPORTS**

WELL NUMBER: A 01 GW

Sh. 1 of 1

PROJECT: GW Recovery WellsLOCATION: Brio North SideTOTAL WELL DEPTH (Ft. BGS) 48.93 BOREHOLE DIA. (in) 12 STICKUP (ft) 4.57CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 ~~30.0~~ SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 6/04/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 33.93

LOCATION SKETCH/ADDITIONAL NOTES

GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|---|
| 33.93 | 0 | | 4.57 | | |
| 30.00 | 5 | | | 3.5 | Clay (CH), tan and red-brown, damp, very stiff |
| 25.00 | 10 | | | 5.0 | - 4.5' former vegetation surface - 5.0 - 10.0' common rootlets |
| 20.00 | 15 | | | 5.0 | - 8.0 - 8.5' silty clay zone, wet, soft - 8.5 - 9.0' crumbly silty clay zone |
| 15.00 | 20 | | | 5.0 | - 9.0 - 15.5' gray and tan - 15.5' red-brown, damp, high plasticity |
| 10.00 | 25 | | | 5.0 | - 24.5 - 31.0' tan and gray |
| 5.00 | 30 | | | 5.0 | Silty Clay (CL), gray and tan, damp to wet, stiff, high plasticity |
| 0.00 | 35 | | | 4.0 | Clayey Silt (ML), tan and gray, saturated, soft, moderately cohesive |
| -5.00 | 40 | | | 4.5 | Silty Sand (SM), very fine-grained, red-brown and minor gray, saturated, soft to flowing |
| -10.00 | 45 | | | 2.0 | - 34.5 - 35.0' silty clay, red-brown, damp, firm - 35.0 - 40.0' silty sand to sandy silt, red-brown and gray, saturated to flowing |
| -15.00 | 50 | | | 4.0 | Clay (CH), damp, red-brown, very stiff with minor saturated Clayey Silt (ML) seams to 2 inches thick, red-brown, damp |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: A 02 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery WellsLOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 43.35 BOREHOLE DIA. (in) 12 STICKUP (ft) 4.65CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 6/05/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 32.85GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|---|
| 32.85 | 0 | | | | |
| 30.00 | 5 | | | 3.5 | Clay (CH), red-brown, gray to dark gray, damp, firm |
| 25.00 | 10 | | | 5.0 | - 4.5 - 5.5' dark gray to black - 5.4' former vegetation surface - 5.9 - 9.0' common rootlets - 5.5 - 9.0' gray to dark gray - 9.0 - 12.5' gray - 12.5 - 12.8' crumbly calcareous-rich zone in clay matrix - 12.8 - 22.5' red-brown and gray, high plasticity |
| 20.00 | 15 | | | 4.0 | |
| 15.00 | 20 | | | 5.0 | |
| 10.00 | 25 | | | 5.0 | |
| 5.00 | 30 | | | 5.0 | |
| - 0.00 | 35 | | | 5.0 | |
| - 5.00 | 40 | | | 2.5 | |
| - 10.00 | 45 | | | 2.5 | |
| - 15.00 | 50 | | | | |
| - 20.00 | 55 | | | | |
| - 25.00 | 60 | | | | |

Volclay
GroutBentonite
Seal20/40
Filter
Pack

4.65

23.35

26.35

28.35

43.35

WELL NUMBER: A 01 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 44.17 BOREHOLE DIA. (in) 8 7/8 STICKUP (ft) 3.58CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Samuel Cheek DATE DRILLED 5/23/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 30.92GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------------|---------------------------------|------------------------------|---|
| 30.92 | 0 | | 3.58 | | |
| 25.00 | 5 | | | | - 0 - 29.0' bgs (below ground surface) drilled without sampling |
| 20.00 | 10 | | | | |
| 15.00 | 15 | | Volclay Grout | NA | |
| 10.00 | 20 | | | | |
| 5.00 | 25 | | | | |
| 0.00 | 30 | Bentonite Seal | 29.17 | 1.0 | Clayey Sand (SC), very fine-grained, red-brown, saturated, soft, slightly cohesive, calcareous nodules (< 1 cm) |
| | | | 32.17 | 2.0 | Clayey Silt (ML), red-brown, wet, soft, slightly cohesive, increase in clay amount to 32.2 |
| | | | 34.17 | 2.0 | Silty Sand (SM), very fine-grained, red-brown, saturated, soft, slightly cohesive - 33.0 - 34.1 flowing |
| - 5.00 | 35 | 20/40 Filter Pack | | 2.0 | Sandy Silty Clay (CL), red-brown, moist, firm |
| | | | | 2.0 | |
| | | | | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, soft, slightly cohesive to flowing |
| - 10.00 | 40 | | | 2.0 | Clayey Silt (ML), red-brown, moist, soft, slightly cohesive |
| | | | | 2.0 | Silty Clay (CL), red-brown, damp, firm, minor sand content |
| | | | 44.17 | 2.0 | Clayey Sand (SC), very fine-grained, red-brown, wet, soft, slightly cohesive |
| - 15.00 | 45 | | | 1.0 | - 43.1 - 45.0 saturated, flowing, grain size increases to fine, with a decrease in clay content |
| - 20.00 | 50 | | | | |
| - 25.00 | 55 | | | | |
| | 60 | | | | |

PROJECT: Piezometers **LOCATION:** Brio North Site

TOTAL WELL DEPTH (Ft. BGS) 49.13 **BOREHOLE DIA. (in)** 8 7/8 **STICKUP (ft)** 2.62

CASING DIA. (in) 1 **TYPE:** Stainless Steel **SCREEN LENGTH (ft)** 10.0 **SLOT SIZE (in)** 0.010

| | | | |
|------------------|-----|-----------------|-------------------|
| DRILLING COMPANY | CCI | DRILLING METHOD | Hollow Stem Auger |
|------------------|-----|-----------------|-------------------|

GEOLOGIST Samuel Cheek **DATE DRILLED** 5/23/02

TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 34.38

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------|---------------------------------|-------------------------------|--|
| 34.38 | 0 | | 2.62 | | |
| 30.00 | 5 | | | | - 0 - 34.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | | | |
| 15.00 | 20 | | Voldray Grout | NA | |
| 10.00 | 25 | | | | |
| 5.00 | 30 | | | | |
| 0.00 | 35 | Bentonite Seal | 34.13 | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, flowing |
| | | | | 2.0 | Silty Clay (CL), red-brown, moist, stiff |
| - 5.00 | 40 | 20/40 Filter Pack | 37.13 | 2.0 | Sand, very fine-grained, with minor Clay (SC), red-brown, saturated, soft, slightly cohesive |
| | | | 39.13 | 2.0 | - 37.2 - 37.8 increasing clay content |
| | | | | 2.0 | |
| - 10.00 | 45 | | | 2.0 | Silty Clay (CL), red-brown, moist, firm, stiff |
| | | | | 2.0 | Sand, very fine-grained, red-brown, saturated, slightly cohesive, minor clay content increasing to 47.8' |
| | | | | 2.0 | Silty Clay (CL), red-brown, moist, firm |
| - 15.00 | 50 | | 49.13 | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, flowing |
| - 20.00 | 55 | | | | |
| - 25.00 | 60 | | | | |

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|---|---------------------------------|--|------------------------|
| | | | | | |
| 32.32 | 0 | | | 5.68 | |
| 30.00 | 1.5 | | | Clay (CH), dark gray, dry to damp, firm, minor iron nodules - 2.1 - 4.3' red-brown color - 4.3 - 11.3' damp with minor silt content, moderate plasticity - 9.5 - 11.3' tan and gray, calcareous nodules | |
| | 2.0 | | | | |
| 25.00 | 2.0 | | | | |
| | 2.0 | | | | |
| | 2.0 | | | | |
| 20.00 | 2.0 | | | Silty Clay (CL), tan and gray, damp, firm, minor calcareous nodules and iron nodules - 16.2 - 18.1' decreasing silt content | |
| | 2.0 | | | | |
| 15.00 | 2.0 | | | | |
| 10.00 | 2.0 | | | Clay (CH), tan and gray, dry, firm Silty Clay (CL), gray, damp, firm | |
| | 2.0 | | | | |
| 0.00 | 2.0 | Sandy Clay (CL), tan and gray, damp, firm, calcareous nodules - 24.4 - 24.7' pocket of calcareous nodules - 28.1 - 28.5' saturated | | | |
| | 2.0 | | | | |
| - 5.00 | 2.0 | Clayey Silt (CL-ML), red-brown, moist, soft, slightly cohesive - 31.3' increase in sand with decrease in clay | | | |
| | 2.0 | | | | |
| -10.00 | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, soft Clay (CH), red-brown, damp, very stiff; tan and gray silt/sand seams throughout clay Sand (SW), very fine-grained, red-brown, wet, soft, noncohesive, minor to common DNAPL Silty Clay (CL), red-brown, damp, firm, minor DNAPL throughout Sand (SW), very fine-grained, red-brown, saturated, flowing Sandy Silty Clay (CL), red-brown, damp, firm, minor DNAPL throughout | | | |
| | 2.0 | | | | |
| -15.00 | 2.0 | | | | |
| -20.00 | 1.0 | | | | |
| | | | | | |
| | 50 | | | | |
| -25.00 | | | | | |
| | 55 | | | | |
| -30.00 | | | | | |
| | 60 | | | | |

WELL NUMBER: B 02 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery Wells LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 48.36 BOREHOLE DIA. (in) 12 STICKUP (ft) 4.39CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 20.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Samuel Cheek DATE DRILLED 5/30/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 33.11GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------------|---------------------------------|-------------------------------|---|
| 33.11 | 0 | | 4.39 | | |
| | | | | 1.5 | Clayey Sand (SC), very fine-grained, red-brown, damp, soft, crumbly |
| 30.00 | | | | 2.0 | Clay (CH), dark brown, dry, firm, stiff, minor iron nodules, rootlets |
| | 5 | | | 2.0 | - 3.5 - 4.0' gravelly road base |
| | | | | 2.0 | - 5.6 - 11.3' soft, minor silt |
| 25.00 | | | | 2.0 | - 8.2 - 11.3' gray |
| | 10 | | | 2.0 | |
| | | Volclay Grout | | 2.0 | |
| 20.00 | | | | 2.0 | Silty Clay (CL), tan to gray, damp, soft, minor iron nodules, minor calcareous nodules |
| | 15 | | | 2.0 | |
| | | | | 2.0 | Clay (CH), tan to gray, damp, firm, stiff, very minor silt |
| 15.00 | | | | 2.0 | |
| | 20 | | | 2.0 | |
| | | | | 2.0 | Sandy Clay (CL), red-brown, wet, soft, sand concentrated in seams |
| 10.00 | | | | 2.0 | |
| | 25 | Bentonite Seal | 23.36 | 2.0 | Silty Sand (SM), very fine-grained, gray, saturated, soft, calcareous nodules |
| | | | 26.36 | 2.0 | - 25.8' becomes red-brown, slightly cohesive |
| 5.00 | | | 28.36 | 2.0 | - 26.2 - 26.8' minor clay content |
| | 30 | | | 2.0 | Sandy Clay (CL), red-brown, damp, firm |
| | | | | 2.0 | Sandy Silt (ML), red-brown, wet, soft, plastic, minor clay content |
| 0.00 | | | | 2.0 | - 34.1 - 40.3' minor DNAPL, increasing clay content |
| | 35 | | | 2.0 | - 38.3 - 39.7' silty sand, red-brown, saturated, soft, slightly cohesive, very minor clay content |
| - 5.00 | | | | 2.0 | |
| | 40 | | | 2.0 | Clay (CH), red-brown, damp, firm, stiff, minor DNAPL 40.3 - 42.3 |
| - 10.00 | | 20/40 Filter Pack | | 2.0 | Clayey Sand (SC), very fine-grained, red-brown, saturated, slightly cohesive, minor silt - 42.3 - 42.6' abundant DNAPL |
| | 45 | | | 2.0 | Clay (CH), red-brown, damp, firm, stiff - 44.0 - 45.2' common DNAPL |
| | | | | 2.0 | Sand (SW), very fine-grained, red-brown, wet to saturated, flowing, DNAPL abundant 46.1 - 46.3 |
| - 15.00 | | | | 2.0 | Sandy Clay (CL), red-brown, damp, firm - 47.6 - 50.0' minor to common DNAPL - 48.1 - 48.3' abundant DNAPL |
| | 50 | | 48.36 | | |
| - 20.00 | | | | | |
| | 55 | | | | |
| - 25.00 | | | | | |
| | 60 | | | | |

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery Wells **LOCATION:** Brio North Site

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**


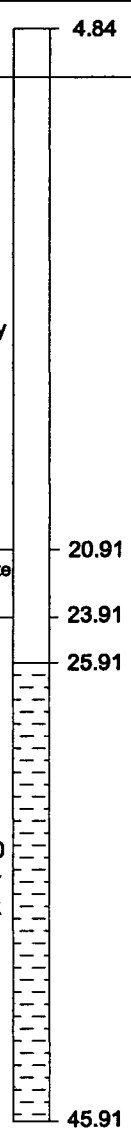
| | | | | | |
|----------------------------|-------|--------------------|----|--------------|------|
| TOTAL WELL DEPTH (Ft. BGS) | 45.91 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.84 |
|----------------------------|-------|--------------------|----|--------------|------|

CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 20.0 SLOT SIZE (in) 0.010

| | | | |
|------------------|-----|-----------------|-------------------|
| DRILLING COMPANY | CCI | DRILLING METHOD | Hollow Stem Auger |
|------------------|-----|-----------------|-------------------|

| | | | |
|------------------|---------------------|---------------------|----------------|
| GEOLOGIST | Samuel Cheek | DATE DRILLED | 6/03/02 |
|------------------|---------------------|---------------------|----------------|

TOP OF CASING ELEVATION (Ft-MSL) GROUND SURFACE ELEVATION (Ft-MSL) 33.16

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|--|--|------------------------------|---|
| 33.16 | 0 |  |  | 2.0 | Clay (CH), dark gray, dry, stiff, small calcareous nodules and iron nodules - 5.9 - 6.3' light brown, sandy material, road base - 6.3 - 10.9' gray to light gray |
| 30.00 | 5 | | | 4.0 | |
| 25.00 | 10 | | | 4.0 | |
| 20.00 | 15 | | | 4.0 | Silty Clay (CL), gray, damp, firm, plastic, calcareous nodules |
| 15.00 | 20 | | | 4.0 | Clayey Silt (ML), red-brown, damp, soft, slightly cohesive |
| 10.00 | 25 | | | 4.0 | Silty Sand (SM), red-brown, saturated, soft, slightly cohesive |
| 5.00 | 30 | | | 4.0 | Alternating layers of Silty Clay (CL), red-brown, damp, stiff to very stiff, minor calcareous nodules; and Clayey Silt (ML), wet to saturated, soft, slightly cohesive - 25.9 - 26.3' clayey silt layer - 26.3 - 33.2' silty clay layer - 33.2 - 34.8' clayey silt layer - 34.8 - 36.2' silty clay layer - 36.2 - 38.4' clayey silt layer - 38.4 - 38.9' silty sand, very fine-grained, seam, red-brown, saturated - 38.9 - 41.3' clayey silt layer - 41.3 - 47.0' silty clay layer |
| 0.00 | 35 | | | 4.0 | |
| - 5.00 | 40 | | | 2.0 | |
| -10.00 | 45 | | | 4.0 | |
| -15.00 | 50 | 3.0 | | | |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: B 04 GW

Sh. 1 of 1

PROJECT: GW Recovery WellsLOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) _____ BOREHOLE DIA. (in) 12 STICKUP (ft) 4.78CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 20.0 SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 5/30/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 34.22

LOCATION SKETCH/ADDITIONAL NOTES

GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|---------------|-------------|---------------------------------|------------------------------|--|
| 34.22 | 0 | | 4.78 | | |
| 30.00 | 5 | | | 5.0 | Clay (CH), damp, firm to very stiff |
| 25.00 | 10 | | | 4.0 | - 0.0 - 2.0' red-brown - 2.0 - 4.0' dark brown, tan and red-brown - 4.0 - 10.0' dark brown to dark gray - 5.5' former vegetation surface, common rootlets to 10' |
| 20.00 | 15 | | | 5.0 | - 10.0 - 14.0' dark gray - 14.0 - 16.0' gray and tan with minor red-brown - 16.0 - 23.0' red-brown, very stiff |
| 15.00 | 20 | | | 5.0 | - 23.0 - 27.5' gray and tan, very stiff, very minor calcareous nodules - 25.0 - 27.5' sandy clay, gray and tan, wet to saturated, soft - 28.5 - 29.0' silt zone, red-brown and gray, saturated, soft - 29.0 - 33.5' clay, red-brown, damp, very stiff |
| 10.00 | 25 | | 23.72 | 5.0 | |
| 5.00 | 30 | | 26.72 | 5.0 | |
| 0.00 | 35 | | 28.72 | 5.0 | |
| -5.00 | 40 | | | 5.0 | Silt (ML) to Silty Clay (CL), red-brown and gray, saturated, common DNAPL in pore spaces |
| -10.00 | 45 | | | 4.0 | Silty Sand (SM), tan, saturated, common DNAPL, noncohesive to flowing |
| -15.00 | 50 | | 48.72 | 4.0 | Intermixed zones <1' thick of clay, silt, and silty sand; sand-rich zones at 41.0 - 41.3 and 43.5 - 43.8' hydrocarbon sheen on saturated sand zones; DNAPL in pore spaces |
| -20.00 | 55 | | | | Clay (CH), red-brown, damp, very stiff, no visible DNAPL |
| -25.00 | 60 | | | | Silty Clay to Clayey Silt (CL-ML), red-brown, saturated, no visible DNAPL |

WELL NUMBER: B 05 GW

PROJECT: GW Recovery Wells **LOCATION:** Brio North Site

| | | | | | |
|----------------------------|-------|--------------------|----|--------------|------|
| TOTAL WELL DEPTH (Ft. BGS) | 48.91 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 5.59 |
|----------------------------|-------|--------------------|----|--------------|------|

CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010

| | | | |
|-------------------------|--------------|------------------------|--------------------------|
| DRILLING COMPANY | Fugro | DRILLING METHOD | Hollow Stem Auger |
|-------------------------|--------------|------------------------|--------------------------|

| | | | |
|------------------|------------------|---------------------|----------------|
| GEOLOGIST | Scott Ude | DATE DRILLED | 5/28/02 |
|------------------|------------------|---------------------|----------------|

| | | |
|----------------------------------|-----------------------------------|-------|
| TOP OF CASING ELEVATION (Ft-MSL) | GROUND SURFACE ELEVATION (Ft-MSL) | 32.91 |
|----------------------------------|-----------------------------------|-------|

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (FT-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|--|
| 32.91 | 0 | | | | |
| 30.00 | 5 | | | 4.0 | Clay (CH), damp, firm, high plasticity |
| 25.00 | 10 | | | 5.0 | - 4.5' dark gray to black, minor oyster shell hash, slightly crumbly - 5.5' former vegetation surface - 5.5 - 9.0' common rootlets - 10.0' gray and tan clay, damp, firm - 14.0' 2" layer at calcareous nodules - 14.5' red-brown and gray, damp, firm, high plasticity - 22.5' gray and tan - 24.0' water on the outside of the core |
| 20.00 | 15 | | | 5.0 | |
| 15.00 | 20 | | | 5.0 | |
| 10.00 | 25 | | | 5.0 | |
| 5.00 | 30 | | | 5.0 | Silt Clay (CL) to Clay (CH), red-brown, gray and tan, wet, firm, moderate to high plasticity |
| 0.00 | 35 | | | 5.0 | Sandy Clay (CL) to Clayey Sand (SC), red-brown and gray, saturated, DNAPL in pore spaces beginning at 32' |
| -5.00 | 40 | | | 5.0 | Clay (CH), red-brown, wet, firm, minor DNAPL |
| -10.00 | 45 | | | 5.0 | Silty Sand (SM) to Sandy Silt (ML), red-brown, saturated, slightly cohesive to flowing, common DNAPL |
| -15.00 | 50 | | | 5.0 | Clay (CH), red-brown, saturated, firm, minor DNAPL |
| -20.00 | 55 | | | 5.0 | Sand (SW), very fine-grained, tan, saturated, flowing |
| -25.00 | 60 | | | 5.0 | Clay (CH), red-brown, saturated, very stiff |
| | | | | 5.0 | - 46.5 - 47.5' silty sand, saturated, DNAPL - 47.5 - 48.5' silty clay with sandy seams, minor DNAPL |

WELL NUMBER: B 01 PZ

Sh. 1 of 1

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 40.97 BOREHOLE DIA. (in) 8 7/8 STICKUP (ft) 2.28CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Samuel Cheek DATE DRILLED 5/22/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 31.22

LOCATION SKETCH/ADDITIONAL NOTES

GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------|---------------------------------|------------------------------|--|
| 31.22 | 0 | | 2.28 | | |
| | 5 | | | | - 0 - 27.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | | | |
| 15.00 | 20 | | | | |
| 10.00 | 25 | | | | |
| 5.00 | 28.1 | | 25.97 | | |
| | 28.97 | Bentonite Seal | 28.97 | 2.0 | Silty Clay (CL), gray, red brown, moist, soft |
| | 30.97 | | 30.97 | 2.0 | - 28.1 - 29.7 clay (CH), red-brown, moist, stiff |
| 0.00 | 30.1 | | | 2.0 | - 29.7 - 30.1 red-brown |
| | 35 | | | 2.0 | Clayey Silt (ML), red-brown, wet, soft, small calcareous nodules |
| | 35 | 20/40 Filter Pack | | 2.0 | Clayey Silty Sand (SM), very fine-grained, red-brown, wet, soft, well-sorted |
| - 5.00 | 40 | | | 2.0 | Clay (CH), red-brown, damp, very stiff |
| | 40 | | | 2.0 | Clayey Silt (ML), red-brown, wet, soft, slightly cohesive |
| - 10.00 | 40.97 | | 40.97 | 2.0 | Clay (CH), red-brown, damp, very stiff |
| | 45 | | | 1.0 | |
| - 15.00 | 50 | | | | |
| - 20.00 | 55 | | | | |
| - 25.00 | 60 | | | | |

WELL NUMBER: B 02 PZ

PROJECT: Piezometers **LOCATION:** Brio North Site

TOTAL WELL DEPTH (Ft. BGS) 44.05 **BOREHOLE DIA. (in)** 8 7/8 **STICKUP (ft)** 2.70

CASING DIA. (in) 1 **TYPE:** Stainless Steel **SCREEN LENGTH (ft)** 10.0 **SLOT SIZE (in)** 0.010

| | | | |
|------------------|-----|-----------------|-------------------|
| DRILLING COMPANY | CCI | DRILLING METHOD | Hollow Stem Auger |
|------------------|-----|-----------------|-------------------|

GEOLOGIST Samuel Cheek **DATE DRILLED** 5/22/02

TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 32.30

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------|---------------------------------|-------------------------------|--|
| 32.30 | 0 | | 2.70 | | |
| 30.00 | 5 | | | | - 0 - 29.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | Volday Grout | NA | |
| 15.00 | 20 | | | | |
| 10.00 | 25 | | | | |
| 5.00 | 30 | Bentonite Seal | 29.05 | 2.0 | Clayey Sand (SC), very fine-grained, red-brown, wet, soft, slightly cohesive - 31.0 - 31.6 saturated - 31.6 - 31.9 increasing clay content - 31.9 - 33.0 increasing sand, saturated |
| 0.00 | 32.05 | | 32.05 | 2.0 | |
| | 34.05 | | 34.05 | 2.0 | Silty Clay (CL), red-brown, moist, firm, stiff - 37.3 - 38.1 DNAPL in pore spaces |
| - 5.00 | 35 | 20/40 Filter Pack | | 2.0 | |
| | 40 | | | 1.5 | Clayey Silt (ML), red-brown, moist, soft, DNAPL present |
| | 42.2 | | | 2.0 | Silty Clay (CL), red-brown, moist, stiff, DNAPL in thin gray silt seam - 39.8 - 42.2 increasing clay |
| - 10.00 | 44.05 | | 44.05 | 2.0 | Clay (CH), red-brown, moist, very stiff, DNAPL present in sand seam |
| | 45 | | | 2.0 | Silty Sand (SM), red-brown, wet, soft, slightly cohesive, DNAPL at 44.1 - 45.0 |
| - 15.00 | 50 | | | | |
| - 20.00 | 55 | | | | |
| - 25.00 | 60 | | | | |

WELL NUMBER: B 03 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 41.75 BOREHOLE DIA. (in) 8 7/8 STICKUP (ft) 2.25CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Samuel Cheek DATE DRILLED 5/20/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 31.75GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|--|
| 31.75 | 0 | | 2.25 | | |
| 30.00 | | | | 1.5 | Clay (CH), brown, damp, small calcareous nodules, soft to firm, minor iron nodules |
| | | | | 1.1 | - 1.8 - 1.9 grassy zone |
| 5 | | | | 2.0 | - 1.9 - 8.5 common rootlets |
| 25.00 | | | | 2.0 | - 8.5 - 10.8 red-brown with increase in amount of iron nodules |
| | | | | 2.0 | - 10.8 - 16.2 very minor silt within clay |
| 20.00 | | | | 2.0 | - 20.3 - 27.1 gray, tan, red-brown |
| | | | | 2.0 | - 27.1 - 27.15 minor sand inclusions |
| 15.00 | | | | 2.0 | |
| | | | | 2.0 | |
| 10.00 | | | | 2.0 | |
| | | | | 2.0 | |
| 5.00 | | | | 2.0 | |
| | | | | 2.0 | |
| 0.00 | | | | 2.0 | |
| | | | | 2.0 | |
| -5.00 | | | | 2.0 | Silty Clay (CL), gray, tan and brown, moist, soft, cohesive |
| | | | | 2.0 | Silt (ML), very fine-grained, tan, saturated, soft, slightly cohesive |
| | | | | 2.0 | Silty Clay (CL), tan-brown, damp, firm, stiff |
| -10.00 | | | | 2.0 | Clay (CH), brown, damp, firm, saturated, lenses of sand / silt |
| | | | | 1.0 | |
| -15.00 | | | | | |
| | | | | | |
| -20.00 | | | | | |
| | | | | | |
| -25.00 | | | | | |
| | | | | | |
| 60 | | | | | |

WELL NUMBER: B 04 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 42.70 BOREHOLE DIA. (in) 8 7/8 STICKUP (ft) 2.55CASING DIA. (in) 1.0 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Samuel Cheek DATE DRILLED 5/21/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 32.45GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|--|
| | | | | 2.55 | |
| 32.45 | 0 | | | 2.0 | Clay (CH), red-brown, damp, firm, plastic, iron nodules |
| 30.00 | | | | 1.2 | Sandy Clay (CL), red-brown, damp, firm, plastic, calcareous nodules |
| | 5 | | | 2.0 | Crushed concrete, gray |
| 25.00 | | | | 2.0 | |
| | 10 | | | 2.0 | Clay (CH), brown, damp, stiff, common rootlets |
| 20.00 | | | | 2.0 | - 3.5 - 4.0 concrete debris |
| | 15 | | | 2.0 | - 7.1 - 7.2 sand seam (vf), gray and tan, wet |
| 15.00 | | | | 2.0 | - 8.0 iron nodules (<1/10 to 1/4" diameter) |
| | 20 | | | 2.0 | |
| 10.00 | | | | 2.0 | Silty Clay (CL), red-brown, damp, firm, plastic, calcareous nodules |
| | 25 | | | 2.0 | - 24.8 gray, tan, red-brown, common calcareous nodules |
| | | | | 2.0 | - 25.3 - 26.1 increasing silt content |
| 5.00 | | | | 2.0 | Clayey Silt (ML), gray, tan, red-brown, wet, soft, calcareous nodules |
| | 30 | | | 2.0 | Clay (CH), red-brown, damp, very stiff, very minor silt content |
| 0.00 | | | | 2.0 | |
| | 35 | | | 2.0 | Clayey Silt (ML), red-brown, wet, soft, slightly cohesive |
| - 5.00 | | | | 2.0 | Clay (CH), red-brown, damp, stiff |
| | 40 | | | 2.0 | Silt (ML), red-brown, saturated, soft, well-sorted |
| | | | | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, flowing |
| - 10.00 | | | | 2.0 | Clay (CH), red-brown, moist, very stiff, DNAPL present |
| | 45 | | | 0.5 | Sand (SW), very fine-grained, red-brown, saturated, flowing, well-sorted |
| - 15.00 | | | | | |
| | 50 | | | | |
| - 20.00 | | | | | |
| | 55 | | | | |
| - 25.00 | | | | | |
| | 60 | | | | |

WELL NUMBER: B 05 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (FL BGS) 42.65 BOREHOLE DIA. (in) 6 STICKUP (ft) 2.35CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 5/20/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 33.65GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------------|---------------------------------|------------------------------|--|
| 33.65 | 0 | | 2.35 | | |
| | | | | 1.5 | Clay (CH), dark brown, tan, and red-brown, dry to damp, firm |
| 30.00 | 5 | | | 1.6 | |
| | | | | 1.5 | - 5.5' former vegetation surface |
| | | | | 1.7 | - 5.5 - 8.0' dark brown, damp, soft to firm, common rootlets |
| 25.00 | 10 | | | 1.9 | - 8.0 - 10.5 gray and tan, high plasticity |
| | | | | 2.0 | - 10.5 - 12.0 red-brown and gray, high plasticity |
| 20.00 | 15 | Volclay Grout | | 2.0 | Silty Sand (SM) to Sand (SW), very fine-grained, red-brown and tan, wet to saturated |
| | | | | 2.0 | - 12.0 - 12.5 sandy clay to clayey sand, red-brown and gray, damp, soft |
| 15.00 | 20 | | | 1.0 | - 14.0' saturated, flowing |
| | | | | 2.0 | Clay (CH), red-brown with minor gray mottling |
| 10.00 | 25 | | | 2.0 | - 20.5 - 26.0' gray and tan clay |
| | | | | 2.0 | - 22.0 - 24.0' common calcareous nodules |
| 5.00 | 30 | Bentonite Seal | 27.65 | 1.8 | - 26.0' - 28.5' red-brown |
| | | | | 2.0 | Silty Clay (CL), red-brown and gray, damp, minor DNAPL in pore spaces at 29.5' |
| 0.00 | 35 | | 30.65 | 2.0 | |
| | | | | 2.0 | |
| | | | 32.65 | 2.0 | |
| | | | | 2.0 | |
| - 5.00 | 40 | 20/40 Filter Pack | | 2.0 | Silt (ML), red-brown, wet to saturated, slightly cohesive |
| | | | | 2.0 | Silty Sand (SM), tan, saturated, DNAPL present |
| | | | | 2.0 | Clay (CH), red-brown, damp, very stiff |
| -10.00 | 45 | | 42.65 | 1.0 | |
| -15.00 | 50 | | | | |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

BORING LOG - WELL NUMBER: B01DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 56.54 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.54 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 6/10/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 33.46 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 57.0 Ft.-BGS

BORING LOG - WELL NUMBER: B02DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 52.51 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.01 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 6/10/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 33.99 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 53.0 Ft.-BGS

BORING LOG - WELL NUMBER: B03DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 57.312 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.31 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| | | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 6/4/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 34.19 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 57.5 Ft.-BGS

BORING LOG - WELL NUMBER: B04DW

| | | | |
|---|-------------------------|---|---------------------------------|
| PROJECT <u>BRIO-NORTH DNAPL WELL INSTALLATION</u> | | LOCATION <u>NORTH COVER - COMPARTMENT B</u> | |
| TOTAL WELL DEPTH (Ft. BGS) | <u>54.98</u> | BOREHOLE DIA. (in) | <u>12</u> |
| | | STICKUP (ft) | <u>3.98</u> |
| CASING DIA. (IN) | <u>4</u> | TYPE <u>Stainless Steel</u> | SCREEN LENGTH (ft.) <u>10.0</u> |
| | | | SLOT SIZE (ft.) <u>0.010</u> |
| DRILLING COMPAN | <u>CCI</u> | DRILLING METHOD | <u>Hollow Stem Auger</u> |
| LOGGER | <u>Walid Abou-Elias</u> | DATE DRILLED | <u>6/5/2002</u> |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | <u>34.52</u> |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 55.5 Ft.-BGS

BORING LOG - WELL NUMBER: B05DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 56.94 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 3.94 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| | | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 6/5/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 34.56 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 57.5 Ft.-BGS

BORING LOG - WELL NUMBER: B06DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 57.57 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 3.57 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 6/4/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 35.43 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 58.0 Ft.-BGS

BORING LOG - WELL NUMBER: B07DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-----------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 58.5 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 3.50 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING METHOD | Hollow Stem Auger | | | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 5/23/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 35.50 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 59.0 Ft.-BGS

BORING LOG - WELL NUMBER: B08DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 59.33 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 3.83 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| | | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 5/24/2003 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 35.17 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 59.5 Ft.-BGS

BORING LOG - WELL NUMBER: B09DW

| | | | |
|---|-------------------------|---|---------------------------------|
| PROJECT <u>BRIO-NORTH DNAPL WELL INSTALLATION</u> | | LOCATION <u>NORTH COVER - COMPARTMENT B</u> | |
| TOTAL WELL DEPTH (Ft. BGS) | <u>57.4</u> | BOREHOLE DIA. (in) | <u>12</u> |
| | | STICKUP (ft) | <u>4.40</u> |
| CASING DIA. (IN) | <u>4</u> | TYPE <u>Stainless Steel</u> | SCREEN LENGTH (ft.) <u>10.0</u> |
| | | SLOT SIZE (ft.) | <u>0.010</u> |
| DRILLING COMPAN | <u>CCI</u> | DRILLING METHOD | <u>Hollow Stem Auger</u> |
| LOGGER | <u>Walid Abou-Elias</u> | DATE DRILLED | <u>5/28/2002</u> |
| TOP OF CASING ELEVATION (Ft-MSL) | <u></u> | GROUND SURFACE ELEVATION (Ft-MSL) | <u>34.60</u> |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 58.0 Ft.-BGS

BORING LOG - WELL NUMBER: B10DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-----------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 57.00 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.00 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING METHOD | Hollow Stem Auger | | | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 5/30/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 35.00 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 57.0 Ft.-BGS

BORING LOG - WELL NUMBER: B11DW

| | | | |
|---|-------------------------|---|---------------------------------|
| PROJECT <u>BRIO-NORTH DNAPL WELL INSTALLATION</u> | | LOCATION <u>NORTH COVER - COMPARTMENT B</u> | |
| TOTAL WELL DEPTH (Ft. BGS) | <u>55.50</u> | BOREHOLE DIA. (in) | <u>12</u> |
| | | STICKUP (ft) | <u>5.00</u> |
| CASING DIA. (IN) | <u>4</u> | TYPE <u>Stainless Steel</u> | SCREEN LENGTH (ft.) <u>10.0</u> |
| | | | SLOT SIZE (ft.) <u>0.010</u> |
| DRILLING COMPAN | <u>CCI</u> | DRILLING METHOD | <u>Hollow Stem Auger</u> |
| LOGGER | <u>Walid Abou-Elias</u> | DATE DRILLED | <u>6/3/2002</u> |
| TOP OF CASING ELEVATION (Ft-MSL) | <u></u> | GROUND SURFACE ELEVATION (Ft-MSL) | <u>35.00</u> |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 56.0 Ft.-BGS

BORING LOG - WELL NUMBER: B12DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-----------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 56.35 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.35 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | | | SLOT SIZE (ft.) | 0.010 |
| DRILLING METHOD | Hollow Stem Auger | | | | |
| LOGGER | Walid Abou-Elias | | DATE DRILLED | 5/21/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 34.15 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 56.5 Ft.-BGS

BORING LOG - WELL NUMBER: B13DW

| | | | | | |
|----------------------------------|------------------------------------|-----------------------------------|-------------------|-----------------------------|-------|
| PROJECT | BRIO-NORTH DNAPL WELL INSTALLATION | | LOCATION | NORTH COVER - COMPARTMENT B | |
| TOTAL WELL DEPTH (Ft. BGS) | 55.30 | BOREHOLE DIA. (in) | 12 | STICKUP (ft) | 4.30 |
| CASING DIA. (IN) | 4 | TYPE | Stainless Steel | SCREEN LENGTH (ft.) | 10.0 |
| DRILLING COMPAN | CCI | DRILLING METHOD | Hollow Stem Auger | | |
| LOGGER | Valid Abou-Elias | | DATE DRILLED | 5/22/2002 | |
| TOP OF CASING ELEVATION (Ft-MSL) | | GROUND SURFACE ELEVATION (Ft-MSL) | | | 34.20 |

Boring was not logged, drilling activities were performed in level B

Boring hole was terminated at 55.5 Ft.-BGS

WELL NUMBER: C 01 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery WellsLOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 45.55 BOREHOLE DIA. (in) 12 STICKUP (ft) 6.45CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 6/11/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 30.55GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|--|
| 30.55 | 0 | | 6.45 | | |
| 30.00 | | | | 5.0 | Clay (CH), red-brown, dark gray and gray, damp, firm |
| | 5 | | | 5.0 | - 4.6' former vegetation surface |
| 25.00 | | | | 5.0 | - 4.5 - 9.2' dark gray |
| | 10 | | | 5.0 | - 9.5 - 12.0' gray |
| 20.00 | | | | 5.0 | - 12.0 - 19.0' red-brown and gray, high plasticity |
| 15.00 | 15 | | Volclay Grout | 5.0 | |
| 10.00 | 20 | | | 5.0 | Clayey Silt (ML) to Silty Clay (CL), gray and tan, wet, soft to firm, cohesive |
| | 25 | | | 5.0 | - 20' saturated below 20' in silt-rich zones |
| 5.00 | | | Bentonite Seal | 5.0 | - 20.0 - 43.5' red-brown color |
| | 30 | | | 5.0 | - 24.0 - 25.5' clay, red-brown, damp, very stiff |
| 0.00 | | | | 2.5 | Silty Sand (SM), very fine-grained, red-brown, saturated, slightly cohesive to flowing |
| -5.00 | 35 | | 20/40 Filter Pack | 5.0 | Silt to Clayey Silt (ML), red-brown, saturated, cohesive to flowing |
| | 40 | | | 4.0 | - 37.5 - 38.0' clay, red-brown, very stiff |
| -10.00 | | | | 2.0 | - 43.0 - 43.5' clay, red-brown, very stiff |
| -15.00 | 45 | | | 2.0 | Sand (SW), very fine-grained, red brown to tan, saturated, flowing |
| | | | | 2.0 | -45.0 - 45.9' clay, red-brown, very stiff |
| -20.00 | 50 | | | | |
| -25.00 | 55 | | | | |
| -30.00 | 60 | | | | |

WELL NUMBER: C 02 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery Wells LOCATION: Brio North Site

TOTAL WELL DEPTH (Ft. BGS) 51.74 BOREHOLE DIA. (in) 12 STICKUP (ft) 5.01

CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010

DRILLING COMPANY CCI DRILLING METHOD Hollow Stem Auger

GEOLOGIST Samuel Cheek DATE DRILLED 6/11/02

TOP OF CASING ELEVATION (Ft-MSL) GROUND SURFACE ELEVATION (Ft-MSL) 34.49

GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|---|
| 34.49 | 0 | | 5.01 | | |
| | | | | 2.0 | Clayey Silt (ML), tan-brown, wet, very cohesive |
| 30.00 | 5 | | | 3.5 | Clay (CH), tan-brown, damp, firm, plastic, common rootlets, minor calcareous and iron nodules |
| | | | | | - 6.0 - 13.2 dark brown |
| 25.00 | 10 | | | 2.0 | |
| | | | | 2.0 | |
| 20.00 | 15 | | | 2.0 | |
| | | | | 4.0 | Silty Clay (CL), tan, red-brown, damp, stiff, plastic |
| | | | | | - 14.1 - 14.2 tar-like material |
| 15.00 | 20 | | | 2.0 | Clay (CH), red-brown, damp, stiff, plastic |
| | | | | 4.0 | |
| 10.00 | 25 | | | 4.0 | Silty Clay (CL), red-brown to gray, damp, firm, plastic |
| | | | | 4.0 | |
| 5.00 | 30 | | | 2.0 | Sandy Silt (ML), red-brown to gray, wet, moderately cohesive, very minor clay content |
| | | | | | - 30.1 - 30.3' increase in clay content |
| | | | | | - 36.1 - 38.2' minor DNAPL |
| -0.00 | 35 | | | 4.0 | |
| | | | | 4.0 | |
| -5.00 | 40 | | | 2.0 | Clayey Silty Sand (SM), very fine-grained, red-brown, saturated, cohesive, soft |
| | | | | 4.0 | -38.2 - 47.5' DNAPL common throughout sand |
| -10.00 | 45 | | | 4.0 | |
| | | | | 4.0 | |
| -15.00 | 50 | | | 4.0 | Clay (CH), red-brown, dry, very stiff |
| | | | | | Silty Sand (SM), very fine-grained, red-brown, saturated, slightly cohesive |
| | | | | | Clay (CH), red-brown, damp, very stiff |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: C 03 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery Wells LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 48.71 BOREHOLE DIA. (in) 12 STICKUP (ft) 4.79CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 6/11/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 33.71GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|--|
| | | | 4.79 | | |
| 33.71 | 0 | | | 1.5 | Clay (CH), dark brown, tan, red-brown and gray, damp, firm - 0 - 2' minor concrete clasts - 4 - 8' minor clasts (<2 cm diam) black charcoal-like, shiny brittle material - 8 - 15' gray and tan, high plasticity - 11.5' calcareous nodule-rich zone to 11.7' - 15 - 19.5' red-brown and gray, minor calcareous nodules, minor pockets of dark brown natural organic matter (<1 cm diam), high plasticity |
| | | | | 1.5 | |
| 30.00 | 5 | | | 1.5 | |
| | | | | 1.5 | |
| 25.00 | 10 | | | 1.5 | |
| | | | | 2.0 | |
| 20.00 | 15 | | | 2.0 | |
| | | | | 2.0 | |
| 15.00 | 20 | | | 2.0 | |
| | | | | 2.0 | |
| 10.00 | 25 | | | 2.0 | Silty Clay (CL) to Clayey Silt (ML), gray and tan, moist to wet, soft - 22 - 50' red-brown - 24' saturated, minor calcareous nodules - 26.5 - 28' clay, red-brown, damp, very stiff, high plasticity |
| | | | | 2.0 | |
| 5.00 | 30 | | | 2.0 | |
| | | | | 2.0 | |
| 0.00 | 35 | | | 2.0 | |
| -5.00 | 40 | | | 2.0 | Silty Sand (SM), very fine-grained, red-brown and gray, saturated, slightly cohesive Silt (ML), red-brown, saturated, slightly cohesive - 38 - 39.5' clay to silty clay - 44 - 45' clay, red-brown, very stiff |
| | | | | 2.0 | |
| -10.00 | 45 | | | 2.0 | |
| | | | | 2.0 | |
| -15.00 | 50 | | | 1.5 | |
| | | | | 2.0 | Sand (SW), very fine-grained, red-brown to tan, saturated, flowing - 47 - 47.2' gray clay, very stiff Clay (CH), red-brown, damp, very stiff |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: C 04 GW

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: GW Recovery WellsLOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 44.51 BOREHOLE DIA. (in) 12 STICKUP (ft) 6.99CASING DIA. (in) 4 TYPE: Stainless Steel SCREEN LENGTH (ft) 15.0 SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 6/06/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 29.51GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|---|
| 29.51 | 0 | | 6.99 | | |
| 25.00 | 5 | | | 4.0 | Clay (CH), dark gray, gray and red-brown, damp, firm |
| 20.00 | 10 | | | 5.0 | - 0 - 4' intermixed colors |
| 15.00 | 15 | | | 5.0 | - 4 - 11' gray and tan, very minor pockets of natural organic matter (< 1 cm diam.) |
| 10.00 | 20 | | | 5.0 | - 11 - 17' red-brown, high plasticity |
| 5.00 | 25 | | | 5.0 | - 17 - 20' tan and gray, slightly silty |
| 0.00 | 30 | | | 5.0 | - 21 - 22' clayey silt, saturated, soft, |
| -5.00 | 35 | | | 5.0 | - 20 - 36' red-brown with minor gray |
| -10.00 | 40 | | | 2.5 | |
| -15.00 | 45 | | | 5.0 | |
| -20.00 | 50 | | | 1.0 | |
| -25.00 | 55 | | | | |
| -30.00 | 60 | | | | |

Volclay
GroutBentonite
Seal20/40
Filter
Pack

C05 GW

**WELL INSTALLATION LOG
NOT AVAILABLE**

WELL NUMBER: C 01 PZ

PROJECT: Piezometers **LOCATION:** Brio North Site

| | | | | | |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|
| TOTAL WELL DEPTH (Ft. BGS) | 46.75 | BOREHOLE DIA. (in) | 8 | STICKUP (ft) | 2.75 |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|

CASING DIA. (in) 1.0 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010

| | | | |
|------------------|-------|-----------------|-------------------|
| DRILLING COMPANY | Fugro | DRILLING METHOD | Hollow Stem Auger |
|------------------|-------|-----------------|-------------------|

GEOLOGIST Scott Ude **DATE DRILLED** 5/22/02

TOP OF CASING ELEVATION (Ft-MSL) GROUND SURFACE ELEVATION (Ft-MSL) 33.75

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|---|
| 33.75 | 0 | | 2.75 | | |
| 30.00 | 5 | | | | - 0 - 35.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | | | |
| 15.00 | 20 | | Volclay Grout | NA | |
| 10.00 | 25 | | | | |
| 5.00 | 30 | | | | |
| 0.00 | 35 | | Bentonite Seal | | |
| - 5.00 | 40 | | 20/40 Filter Pack | 4.5 | Clay (CH), red-brown, damp, very stiff Clayey Silt (ML), saturated, cohesive, soft |
| - 10.00 | 45 | | | 3.5 | Sand (SW), very fine-grained, tan, saturated, flowing Silty Clay (CL), red-brown, wet, firm |
| - 15.00 | 50 | | | 2.5 | Sand (SW), very fine-grained, tan, saturated, minor DNAPL pockets Clay (CH) to Silty Clay (CL), red-brown, wet to saturated - 46.0' 1 - inch sand seam with DNAPL |
| - 20.00 | 55 | | | | |
| - 25.00 | 60 | | | | |

WELL NUMBER: C 02 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 49.40 BOREHOLE DIA. (in) 6 STICKUP (ft) 3.10CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY CCI DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 5/21/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 34.40GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (FL) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|---|
| 34.40 | 0 | | 3.10 | | |
| | | | | 1.5 | Sandy Clay (CL), red-brown, dry |
| | | | | 1.5 | |
| 30.00 | 5 | | | 1.5 | Clay (CH) to Silty Clay (CL), dark brown and tan, minor red-brown, damp, very stiff |
| | | | | 1.5 | - 6 - 8' common rootlets, minor fine calcareous nodules |
| | | | | 2.0 | - 8 - 12' dark gray to gray, minor iron nodules < 2 mm diam, minor NAPL staining, soft to firm |
| 25.00 | 10 | | | 2.0 | |
| | | | | 2.0 | |
| 20.00 | 15 | | | 2.0 | Clay (CH), gray, damp, very stiff. |
| | | | | 2.0 | - 14' becomes red-brown and gray, very stiff at 14 - 14.5' silty clay |
| | | | | 2.0 | - 24 - 26' sandy clay, gray and red-brown, wet, firm |
| 15.00 | 20 | | | 2.0 | - 26' saturated on outside of core |
| | | | | 2.0 | - 30 - 33' silty clay, saturated, soft to firm |
| 10.00 | 25 | | | 2.0 | |
| | | | | 2.0 | |
| 5.00 | 30 | | | 2.0 | |
| | | | | 2.0 | |
| 0.00 | 35 | | | 2.0 | |
| | | | | 2.0 | Clayey Silt (ML), red-brown, wet, slightly cohesive |
| | | | | 2.0 | - 35 - 36' clay, red-brown, damp, stiff |
| -5.00 | 40 | | | 2.0 | |
| | | | | 2.0 | Silty Sand (SM), very fine-grained, to Clayey Silty Sand, red-brown and gray, saturated, flowing to slightly cohesive |
| -10.00 | 45 | | | 2.0 | Sand (SW), very fine-grained, tan, saturated, flowing. |
| | | | | 2.0 | Clay (CH), red-brown, damp, very stiff |
| -15.00 | 50 | | | 2.0 | - 45.6' 1/2" sd, very fine-grained seam |
| | | | | 2.0 | - 49 - 50' clayey silt |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: C 03 PZ

PROJECT: Piezometers **LOCATION:** Brio North Site

| | | | | | |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|
| TOTAL WELL DEPTH (Ft. BGS) | 50.00 | BOREHOLE DIA. (in) | 8 | STICKUP (ft) | 2.50 |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|

CASING DIA. (in) 1 **TYPE:** Stainless Steel **SCREEN LENGTH (ft)** 10.0 **SLOT SIZE (in)** 0.010

| | | | |
|-------------------------|--------------|------------------------|--------------------------|
| DRILLING COMPANY | Fugro | DRILLING METHOD | Hollow Stem Auger |
|-------------------------|--------------|------------------------|--------------------------|

GEOLOGIST Scott Ude **DATE DRILLED** 5/22/02

TOP OF CASING ELEVATION (Ft-MSL) GROUND SURFACE ELEVATION (Ft-MSL) 34.50

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft+MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------|---------------------------------|-------------------------------|--|
| 34.50 | 0 | | 2.50 | | |
| 30.00 | 5 | | | | - 0 - 35.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | | | |
| 15.00 | 20 | | Volclay Grout | NA | |
| 10.00 | 25 | | | | |
| 5.00 | 30 | | | | |
| 0.00 | 35 | | | | |
| -5.00 | 40 | Bentonite Seal | 38.00 | 3.0 | Clayey Silt (ML) to Silty Clay (CL), red-brown and minor gray, saturated, soft. - 39.0 - 40.0 clay, red-brown, damp, very stiff |
| -10.00 | 45 | 20/40 Filter Pack | 40.00 | 2.5 | |
| -15.00 | 50 | | 50.00 | 2.5 | Sand (SW), very fine-grained, red-brown, saturated, flowing |
| -20.00 | 55 | | | 2.0 | Clay (CH), red-brown, damp, very stiff |
| -25.00 | 60 | | | | |

PROJECT: Piezometers **LOCATION:** Brio North Site

| | | | | | |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|
| TOTAL WELL DEPTH (Ft. BGS) | 47.28 | BOREHOLE DIA. (in) | 8 | STICKUP (ft) | 3.97 |
|-----------------------------------|--------------|---------------------------|----------|---------------------|-------------|

CASING DIA. (in) 1.0 TYPE: Stainless Steel SCREEN LENGTH (ft) 10' SLOT SIZE (in) 0.010

| | | | |
|------------------|-----|-----------------|-------------------|
| DRILLING COMPANY | CCI | DRILLING METHOD | Hollow Stem Auger |
|------------------|-----|-----------------|-------------------|

GEOLOGIST **Samuel Cheek** **DATE DRILLED** **5/24/02**

| | | |
|----------------------------------|-----------------------------------|-------|
| TOP OF CASING ELEVATION (Ft-MSL) | GROUND SURFACE ELEVATION (Ft-MSL) | 32.03 |
|----------------------------------|-----------------------------------|-------|

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft.) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|-------------------------------|--|
| 32.03 | 0 | | 3.97 | | |
| 30.00 | 5 | | | | - 0 - 32.0' bgs (below ground surface) drilled without sampling |
| 25.00 | 10 | | | | |
| 20.00 | 15 | | | | |
| 15.00 | 20 | | | | |
| 10.00 | 25 | | | | |
| 5.00 | 30 | | | | |
| 0.00 | 32.28 | | | 2.0 | Clayey Silt (ML), red-brown, moist, soft, slightly cohesive, minor sand |
| -5.00 | 35.28 | | | 2.0 | Clayey Sand (SC), red-brown, wet, soft, slightly cohesive |
| | 37.28 | | | 2.0 | - 35.8 - 35.9 clay seam |
| | | | | 2.0 | |
| -10.00 | | | | 2.0 | Sand (SW), very fine-grained, red-brown, saturated, soft, slightly cohesive, very minor clay content |
| | | | | 0.0 | |
| | | | | 2.0 | Clay (CH), red-brown, moist, firm, minor sand |
| -15.00 | | | | 2.0 | Sand (vf) (SW), red-brown, saturated, soft |
| | | | | 2.0 | - 47.5 - 47.8 sandy clay, red brown, moist, firm |
| | 50 | | | | |
| -20.00 | 55 | | | | |
| -25.00 | 60 | | | | |

WELL NUMBER: C 05 PZ

Sh. 1 of 1

LOCATION SKETCH/ADDITIONAL NOTES

PROJECT: Piezometers LOCATION: Brio North SiteTOTAL WELL DEPTH (Ft. BGS) 45.73 BOREHOLE DIA. (in) 8 STICKUP (ft) 3.77CASING DIA. (in) 1 TYPE: Stainless Steel SCREEN LENGTH (ft) 10.0 SLOT SIZE (in) 0.010DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem AugerGEOLOGIST Scott Ude DATE DRILLED 5/24/02TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 30.73GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (Ft) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------------------|---------------------------------|------------------------------|---|
| 30.73 | 0 | | 3.77 | | |
| 25.00 | 5 | | | | - 0 - 30.0' bgs (below ground surface) drilled without sampling |
| 20.00 | 10 | | | | |
| 15.00 | 15 | | Volclay Grout | NA | |
| 10.00 | 20 | | | | |
| 5.00 | 25 | | | | |
| 0.00 | 30 | | | | |
| | | Bentonite Seal | 30.73 | 4.0 | Silty Sand (SM), red-brown, saturated, very soft, slightly cohesive |
| | | | 33.73 | | |
| - 5.00 | 35 | | 35.73 | 4.0 | Clay (CH) with minor Silty Clay (CL), red-brown, saturated, firm |
| | | 20/40 Filter Pack | | | |
| - 10.00 | 40 | | | 4.0 | Sand (SW), very fine-grained, red-brown, saturated, noncohesive |
| - 15.00 | 45 | | 45.73 | 2.0 | Clay (CH), red-brown, damp, very stiff |
| - 20.00 | 50 | | | | |
| - 25.00 | 55 | | | | |
| | 60 | | | | |

WELL NUMBER: C 06 PZ

PROJECT: Piezometers **LOCATION:** Brio North Site

TOTAL WELL DEPTH (Ft. BGS) 43.40 BOREHOLE DIA. (in) 8 STICKUP (ft) 3.60

CASING DIA. (In) 1 **TYPE:** Stainless Steel **SCREEN LENGTH (ft)** 10.0 **SLOT SIZE (In)** 0.010

DRILLING COMPANY Fugro DRILLING METHOD Hollow Stem Auger

GEOLOGIST Scott Ude DATE DRILLED 5/23/02

TOP OF CASING ELEVATION (Ft-MSL) _____ GROUND SURFACE ELEVATION (Ft-MSL) 28.40

LOCATION SKETCH/ADDITIONAL NOTES

**GROUND SURFACE ELEVATION =
BEDDING LAYER ELEVATION
AT THE TIME OF CONSTRUCTION**

| ELEVATION (Ft-MSL) | DEPTH (Ft) | GRAPHIC LOG | WELL CONSTRUCTION DETAILS | SOIL SAMPLE RECOVERY (FL) | LITHOLOGIC DESCRIPTION |
|-----------------------|------------|-------------|---------------------------------|------------------------------|---|
| 28.40 | 0 | | 3.60 | | |
| 25.00 | 5 | | | | |
| 20.00 | 10 | | | | |
| 15.00 | 15 | | Volclay Grout | NA | |
| 10.00 | 20 | | | | |
| 5.00 | 25 | | | | |
| 0.00 | 30 | | Bentonite Seal | | |
| -5.00 | 35 | | | 4.5 | Clayey Silt (ML) with minor Silty Clay (CL), red-brown, silty zones are very soft and saturated |
| -10.00 | 40 | | 20/40 Filter Pack | 4.5 | |
| -15.00 | 45 | | | 3.0 | Sand (SW), very fine-grained, red-brown, saturated, flowing |
| -20.00 | 50 | | | | |
| -25.00 | 55 | | | | |
| -30.00 | 60 | | | | |

SOIL BORING/RECOVERY WELL: **DO1GW**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 10.5 inch

MONITOR WELL DIA: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,758.74

E 3,207,903.21

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

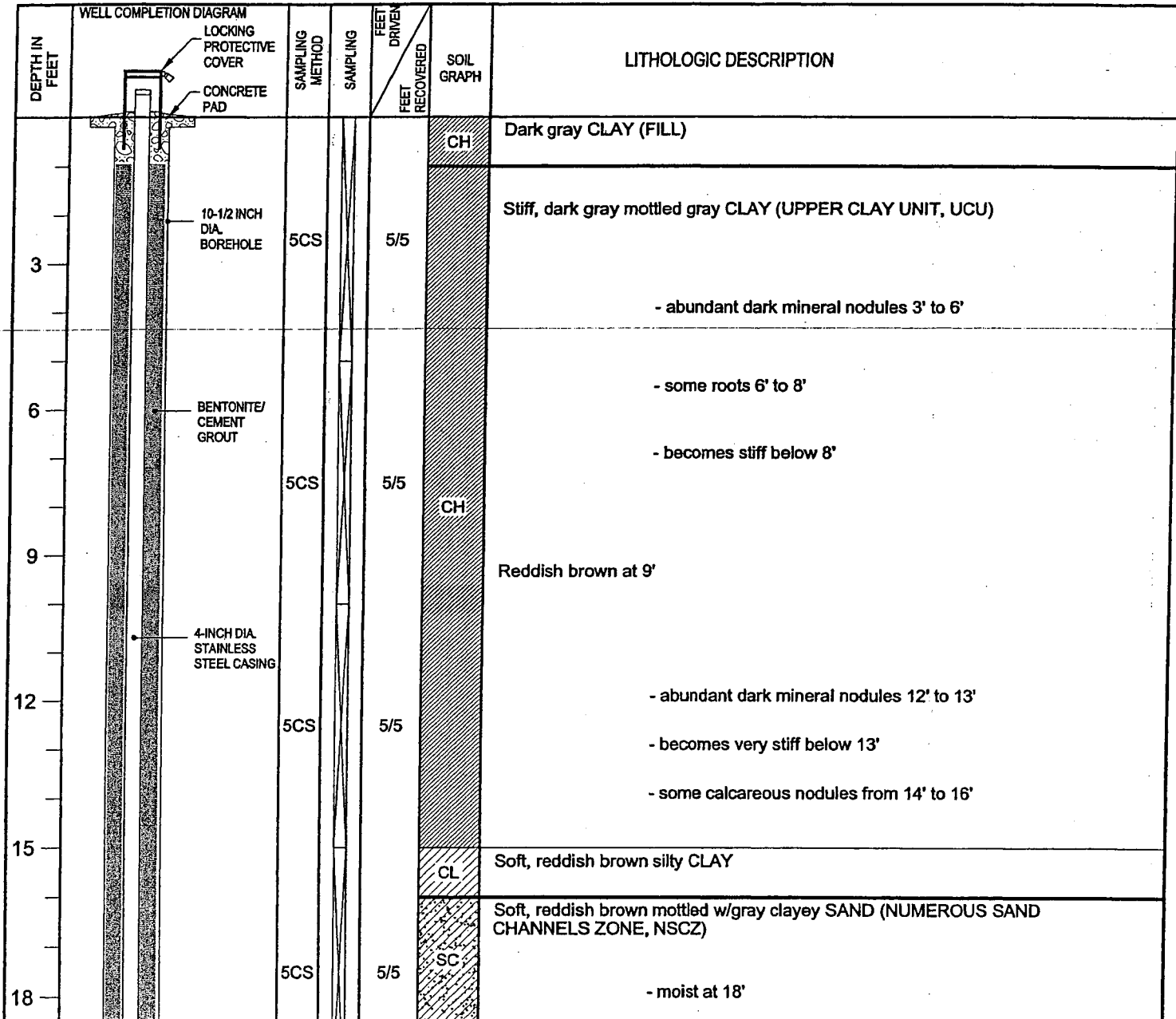
BEDDING LAYER SURFACE ELEV.: 31.25'

ELEVATION (TOC): 36.83'

INITIAL GROUNDWATER DEPTH: 19.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CONTINUOUS SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO1GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,758.74

E 3,207,903.21

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

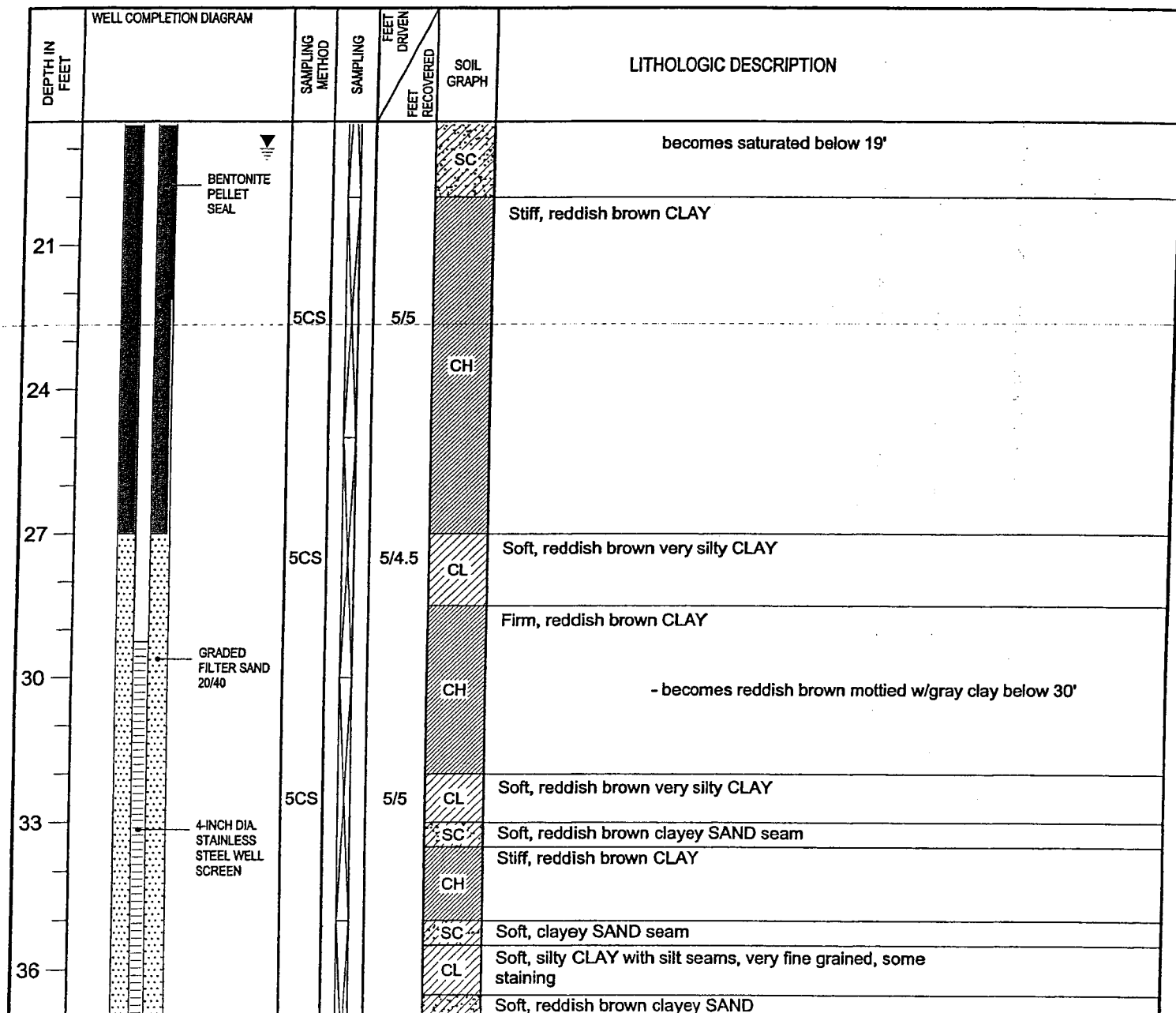
BEDDING LAYER SURFACE ELEV.: 31.25'

ELEVATION (TOC): 36.83'

INITIAL GROUNDWATER DEPTH: 19.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY


PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CONTINUOUS SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO1GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,758.74

E 3,207,903.21

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

BEDDING LAYER SURFACE ELEV.: 31.25'

ELEVATION (TOC): 36.83'

INITIAL GROUNDWATER DEPTH: 19.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY


PAGE: 3 OF 3

| DEPTH IN FEET | WELL COMPLETION DIAGRAM | SAMPLING METHOD | SAMPLING | FEET DRIVEN FEET RECOVERED | SOIL GRAPH | LITHOLOGIC DESCRIPTION |
|---------------|-------------------------------|-----------------|----------|-------------------------------|------------|--|
| 39 | GRADED FILTER SAND 20/40 | 5CS | | 5/4 | SC | Soft, reddish brown very silty CLAY with silt seams |
| | | | | | CL | - light gray mottling |
| 42 | 4-INCH DIA. STEEL WELL SCREEN | 5CS | | 4.5/4.5 | SM | Soft, very fine grained SAND with silt seams |
| | | | | | CL | Soft, silty CLAY with silt seams |
| 45 | BOTTOM CAP | | | | | Boring DO1GW terminated at 44.5 feet below ground surface. Bottom of well at 44.25' BGS. |
| 48 | | | | | | |
| 51 | | | | | | |
| 54 | | | | | | |

SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CONTINUOUS SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO2GW**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,084.3925 E 3,208,100.7687

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

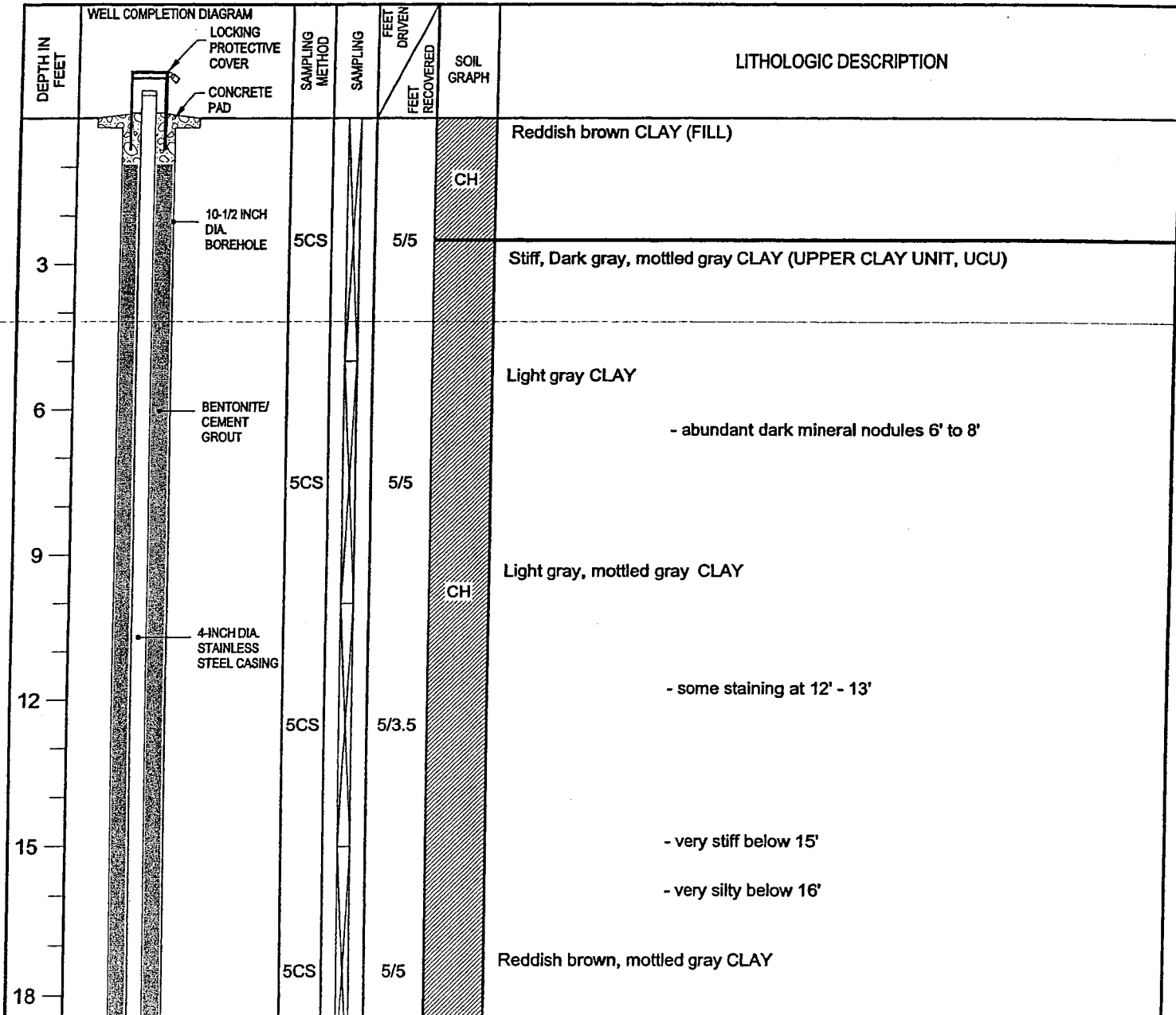
BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 40.40'

INITIAL GROUNDWATER DEPTH : 23.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CONTINUOUS SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO2GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,084.3925 E 3,208,100.7687

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

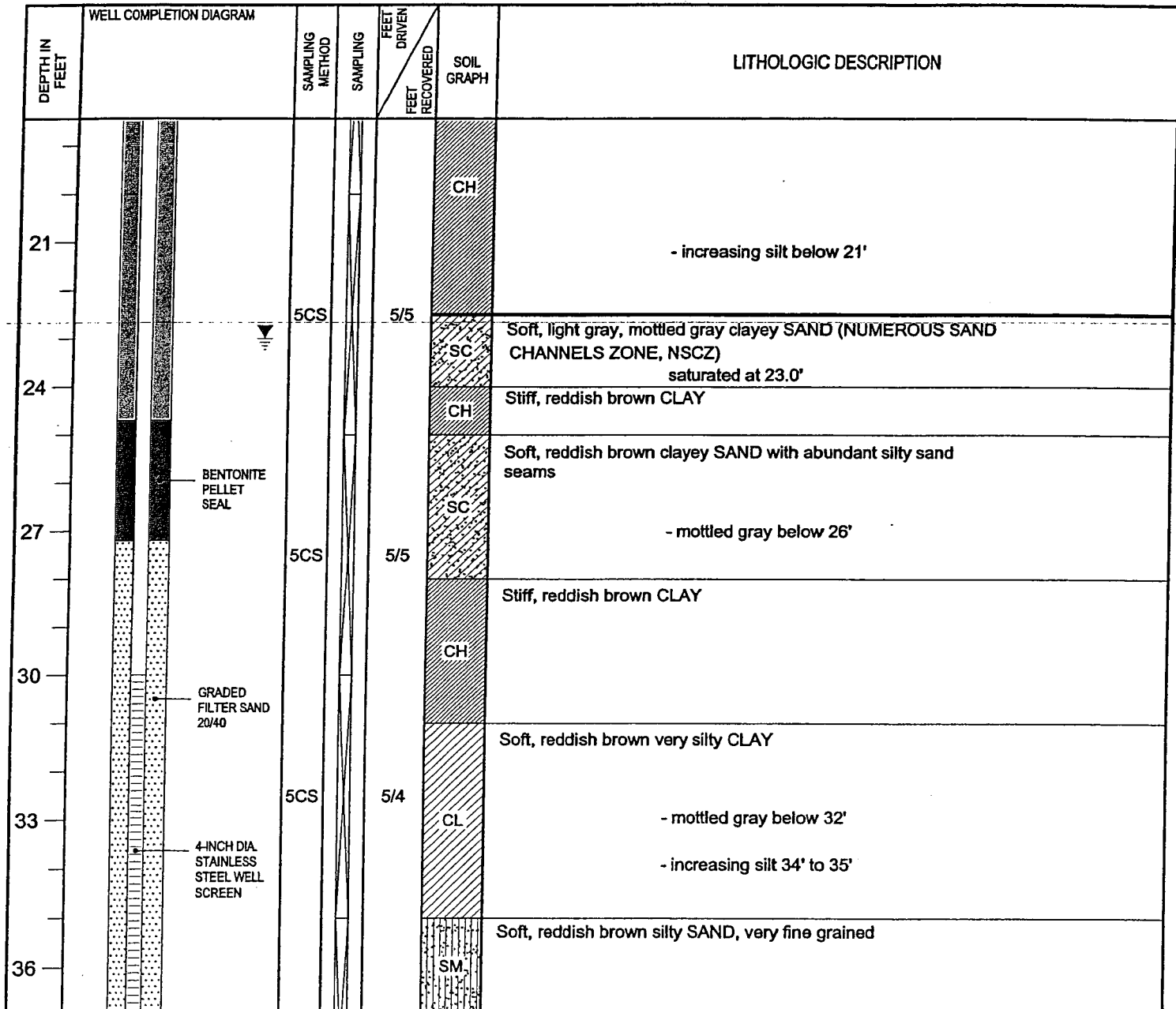
BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 40.40'

INITIAL GROUNDWATER DEPTH: 23.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CONTINUOUS SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO2GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,084.3925 E 3,208,100.7687

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

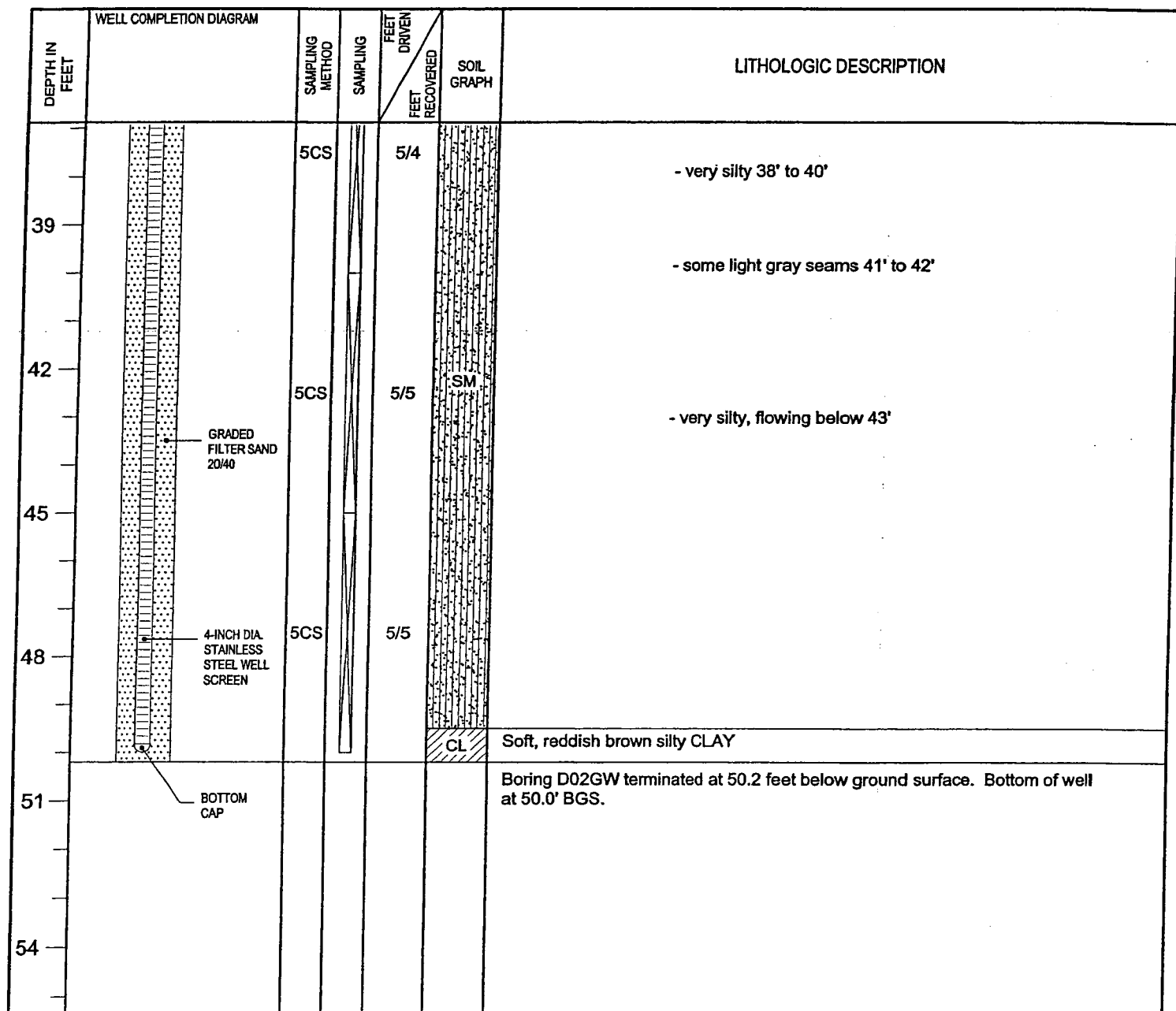
BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 40.40'

INITIAL GROUNDWATER DEPTH: 23.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CONTINUOUS SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **DO3GW**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,271.22 E 3,208,262.94

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

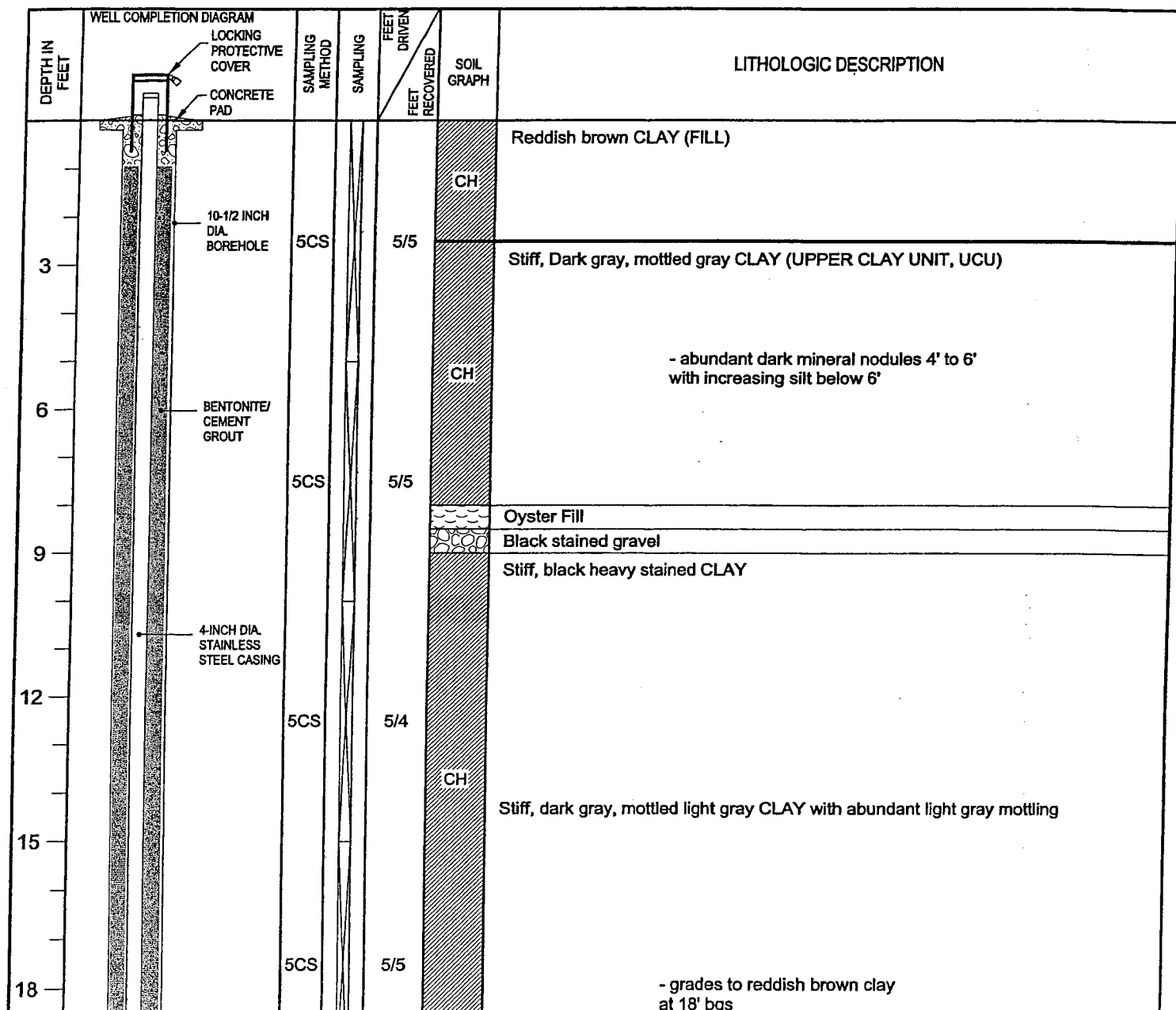
BEDDING LAYER SURFACE ELEV.: 36.8'

ELEVATION (TOC): 41.16'

INITIAL GROUNDWATER DEPTH: 26.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

| | |
|------|-----------------------------------|
| SPT | STANDARD PENETRATION TEST SAMPLER |
| GP | GEOPROBE SAMPLER |
| 5CS | 5-FOOT CONTINUOUS SAMPLER |
| CT | AUGER CUTTING |
| TOC | TOP OF CASING |
| BTOC | BELOW TOP OF CASING |
| BGS | BELOW GROUND SURFACE |
| N/A | NOT APPLICABLE or NOT AVAILABLE |

WELL COMPLETION KEY:

| | | | |
|-----|-----------------------------------|-----|-------------------------------------|
| LP | LOCKING PROTECTION (ABOVE GROUND) | SK | FILTER SOCK |
| FP | FLUSHED PROTECTION (GROUND LEVEL) | SSC | STAINLESS STEEL CENTRALIZER |
| BCG | BENTONITE/CEMENT GROUT | SCR | SCREEN, SLOTTED PVC (1" or 4" DIA.) |
| PVC | BLANK PVC CASING (1" or 4" DIA.) | ▽ | GROUNDWATER LEVEL |
| BH | BOREHOLE | BC | BOTTOM CAP |
| BS | BENTONITE SEAL | | |
| FS | FILTER SAND | | |

URS

SOIL BORING/RECOVERY WELL: **DO3GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 10.5 inch

MONITOR WELL DIA: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,271.22

E 3,208,262.94

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

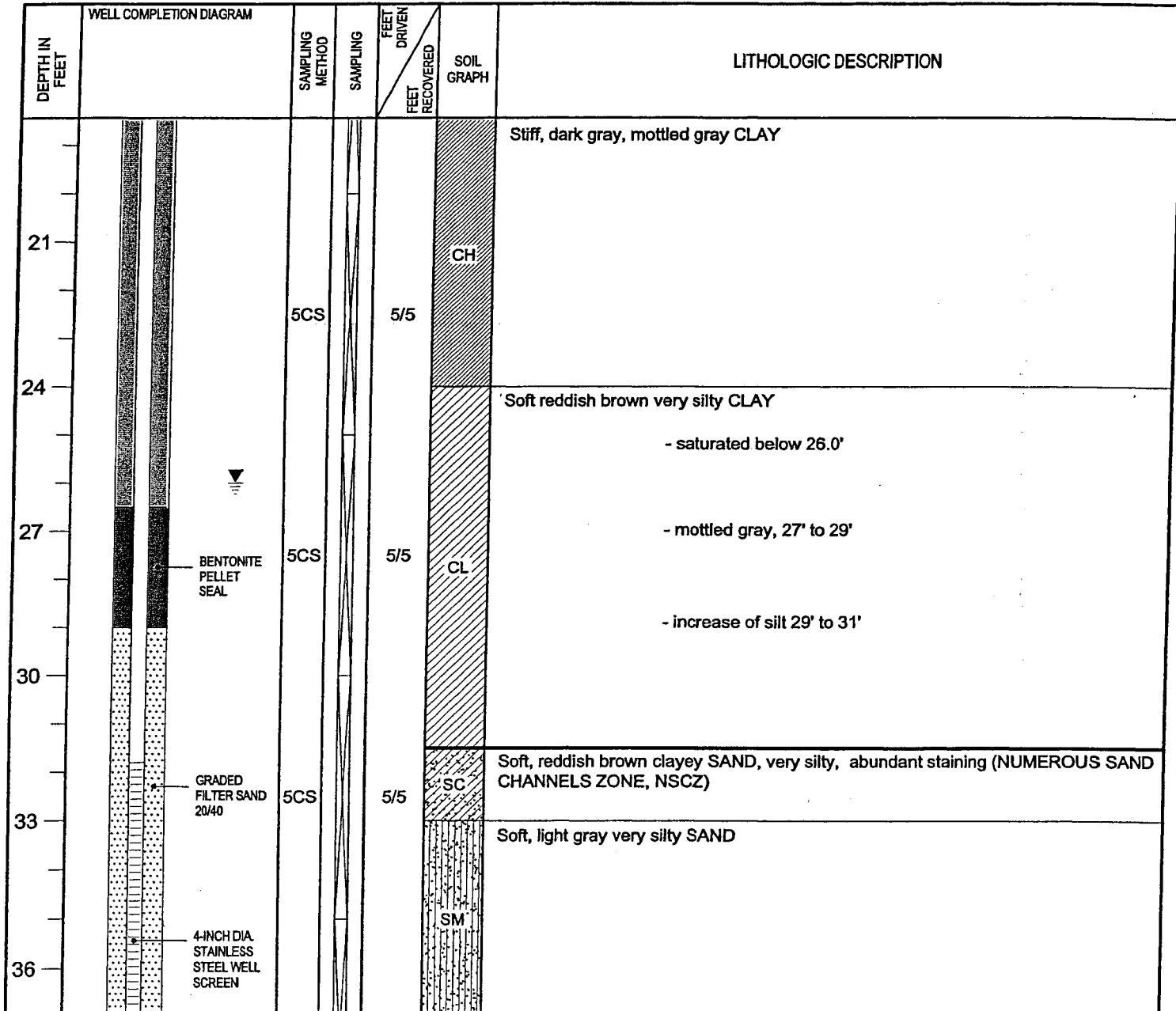
BEDDING LAYER SURFACE ELEV.: 36.8'

ELEVATION (TOC): 41.16'

INITIAL GROUNDWATER DEPTH: 26.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CONTINUOUS SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/RECOVERY WELL: **D03GW (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 10.5 inch

MONITOR WELL DIA.: 4 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,271.22

E 3,208,262.94

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

BEDDING LAYER SURFACE ELEV.: 36.8'

ELEVATION (TOC): 41.16'

INITIAL GROUNDWATER DEPTH : 26.0 BGS

SURFACE CONDITION: BEDDING LAYER CLAY


PAGE: 3 OF 3

| DEPTH IN FEET | WELL COMPLETION DIAGRAM | SAMPLING METHOD | SAMPLING | FEET DRIVEN FEET RECOVERED | SOIL GRAPH | LITHOLOGIC DESCRIPTION |
|---------------|-------------------------|-----------------|----------|-------------------------------|------------|--|
| 39 | | 5CS | | 5/5 | CL | Soft, reddish brown silty CLAY seam |
| | | | | | SM | Soft, reddish brown very silty SAND |
| | | | | | SC | Soft, reddish brown clayey SAND with abundant silty seams |
| 42 | | 5CS | | 5/5 | SM | Soft, reddish brown silty SAND seam |
| | | | | | SC | Soft, reddish brown clayey SAND |
| | | | | | | - very silty 44' to 45' |
| 45 | | | | | | Soft, reddish brown silty SAND |
| | | | | | SM | - very silty below 49' |
| 48 | | 5CS | | 5/4 | | - some affected sand 48' to 49' |
| 51 | | 5CS | | 2/2 | CL | Soft, reddish brown very silty CLAY |
| 54 | | | | | | Boring D03GW terminated at 52.0 feet below ground surface. Bottom of well at 51.80' BGS. |

SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CONTINUOUS SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

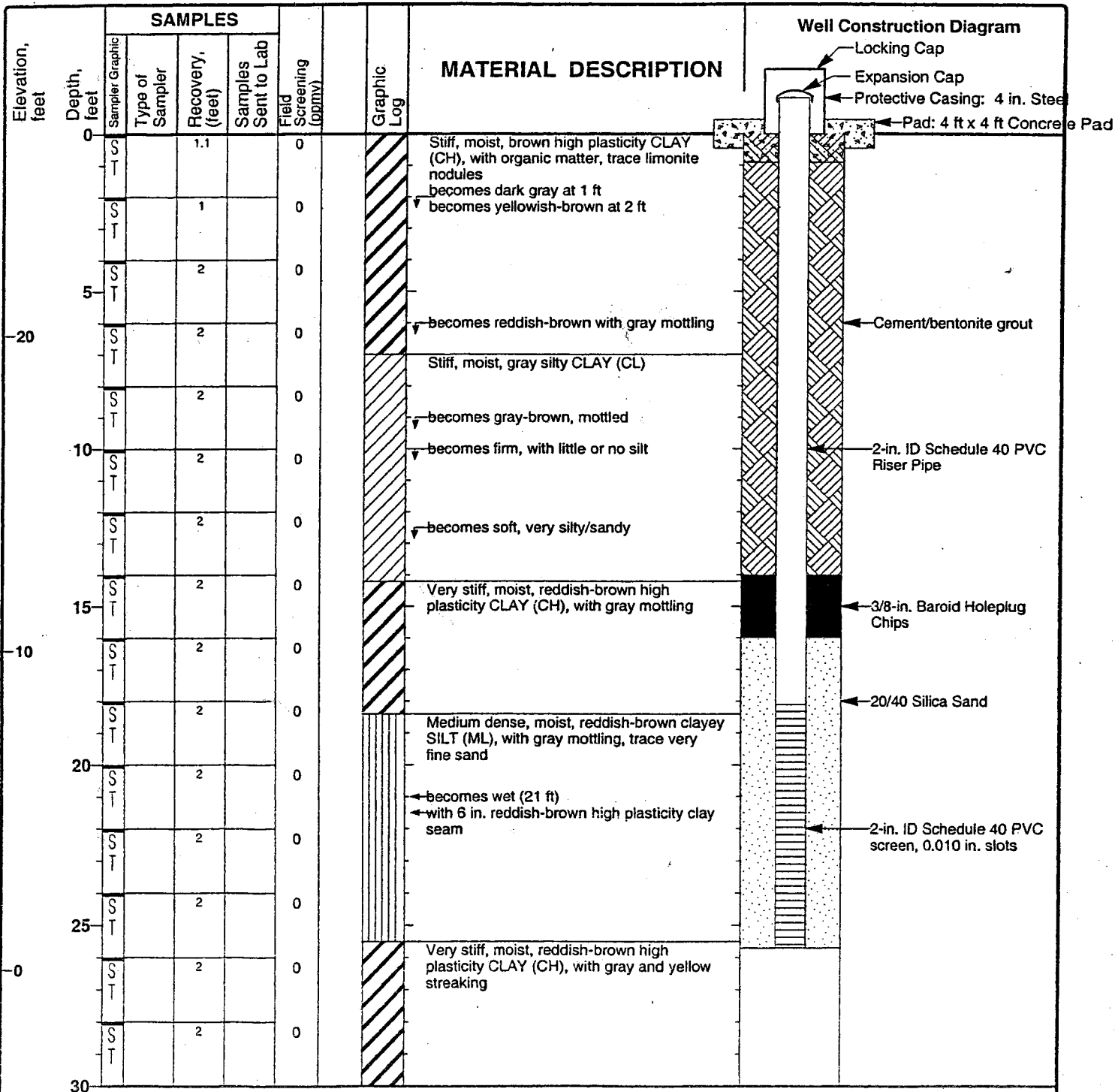
LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

Project: Brio Monitored Natural Attenuation Study
Project Location: Brio Superfund Site, Houston, Texas
Project Number: 46-00000024.00

**LOG OF BORING & WELL
 CONSTRUCTION FOR P0-610**
 Sheet 1 of 2

| | | | | | |
|--|---------------------------------|---|--------------------------|-----------------------------------|-------|
| Date(s) Drilled | 8/7/00 | Logged By | E. Page | Checked By | |
| Drilling Method | 4-1/4 in. ID Hollow-Stem Augers | Borehole Diameter (in.) | 8 | Total Depth Drilled (ft BGL) | 42.0 |
| Drill Rig Type | Failing F-6 | Drilling Contractor | CCI EnviroDrilling, Inc. | Ground Surface Elevation (ft MSL) | 26.40 |
| Water Encountered During Drilling (ft bgs) | 21 ft | Static Water Level (ft bgs) and Date Measured | | Top of Casing Elevation (ft MSL) | 29.15 |
| Comments Boring was grouted to surface and monitoring well installed in adjacent boring. | | | | | |










Project: Brio Monitored Natural Attenuation Study

Project Location: Brio Superfund Site, Houston, Texas

Project Number: 46-00000024.00

LOG OF BORING & WELL CONSTRUCTION FOR P0-610

Sheet 2 of 2

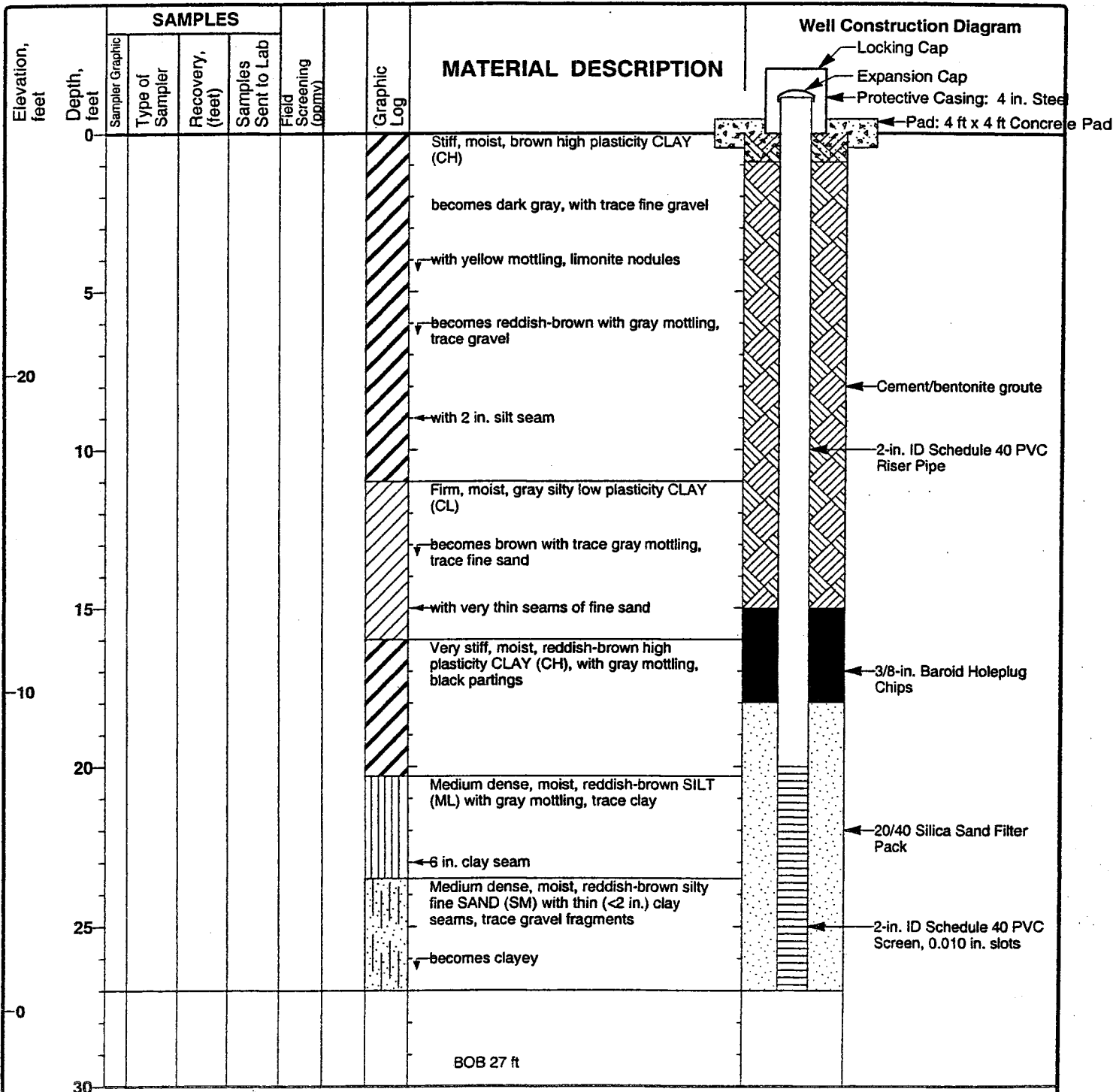
| Elevation, feet | Depth, feet | SAMPLES | | | | Field Screening (ppmv) | Graphic Log | MATERIAL DESCRIPTION | Well Construction Diagram | |
|--------------------|----------------|-----------------|--------------------|---------------------|------------------------|------------------------------|---|---|---------------------------|--|
| | | Sampler Graphic | Type of Sampler | Recovery, (feet) | Samples Sent to Lab | | | | | |
| -10 | 30 | S T | | 2 | | 0 |  | SAME: Very stiff, moist, reddish-brown high plasticity CLAY (CH), with gray and yellow streaking with thin silt partings | | |
| | | S T | | 2 | | 0 | | | | |
| | | S T | | 2 | | 0 | | | | |
| | 35 | S T | | 2 | | 0 | | | | |
| | | S T | | 2 | | 0 | | | | |
| | | S T | | 2 | | 0 | | | | |
| -20 | 40 | S T | | 2 | | 0 |  | BOB 42 ft. Samples collected using 3 in. OD Shelby Tube. | | |
| | | S T | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| -30 | 45 | | | | | |  | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| -40 | 50 | | | | | |  | | | |
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| | | | | | | | | | | |
| -50 | 55 | | | | | |  | | | |
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| | | | | | | | | | | |
| -60 | 60 | | | | | |  | | | |
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| | | | | | | | | | | |
| -70 | 65 | | | | | |  | | | |
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BWC_1 BRIOMNA.GPJ WC_CORP1.GDT 11/2/00

Project: Brio Monitored Natural Attenuation Study
Project Location: Brio Superfund Site, Houston, Texas
Project Number: 46-00000024.00

**LOG OF BORING & WELL
CONSTRUCTION FOR P0-613**
Sheet 1 of 1

| | | | | | |
|---|---------------------------------|---|--------------------------|-----------------------------------|-------|
| Date(s) Drilled | 8/8/00 | Logged By | E. Page | Checked By | |
| Drilling Method | 4-1/4 in. ID Hollow-Stem Augers | Borehole Diameter (in.) | 8 | Total Depth Drilled (ft BGL) | 27.0 |
| Drill Rig Type | Failing F-6 | Drilling Contractor | CCI EnviroDrilling, Inc. | Ground Surface Elevation (ft MSL) | 27.60 |
| Water Encountered During Drilling (ft bgs) | | Static Water Level (ft bgs) and Date Measured | | Top of Casing Elevation (ft MSL) | 30.30 |
| Comments No samples collected during installation of P0-613. Well installed adjacent to P0-612. | | | | | |



SOIL BORING/PIEZOMETER: **DO1PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,070.5095 E 3,207,812.7553

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

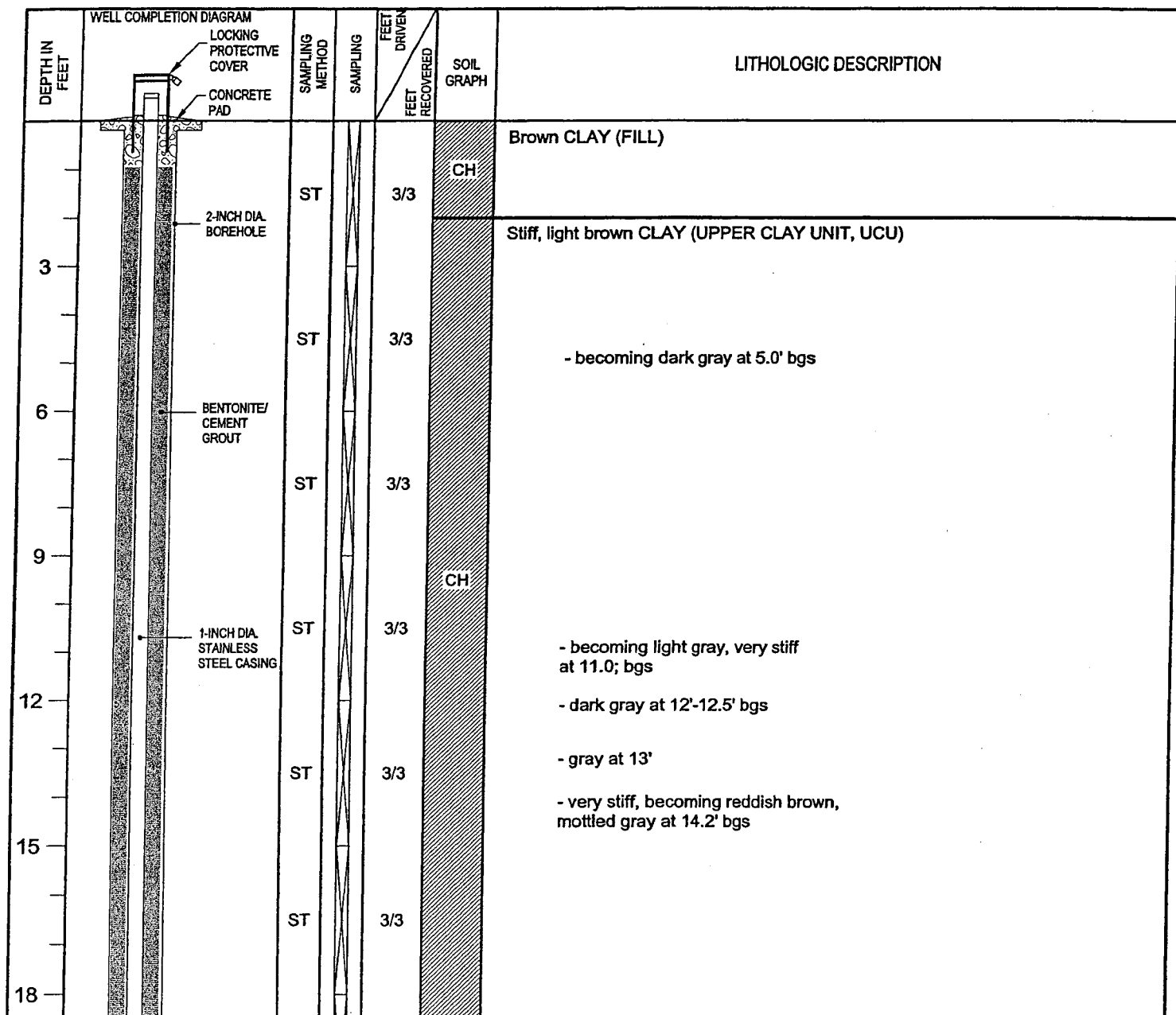
BEDDING LAYER SURFACE ELEV.: 33.0'

ELEVATION (TOC): 33.88'

INITIAL GROUNDWATER DEPTH : 22.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 ▼ GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO1PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA: 7 inch

MONITOR WELL DIA: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,070.5095 E 3,207,812.7553

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

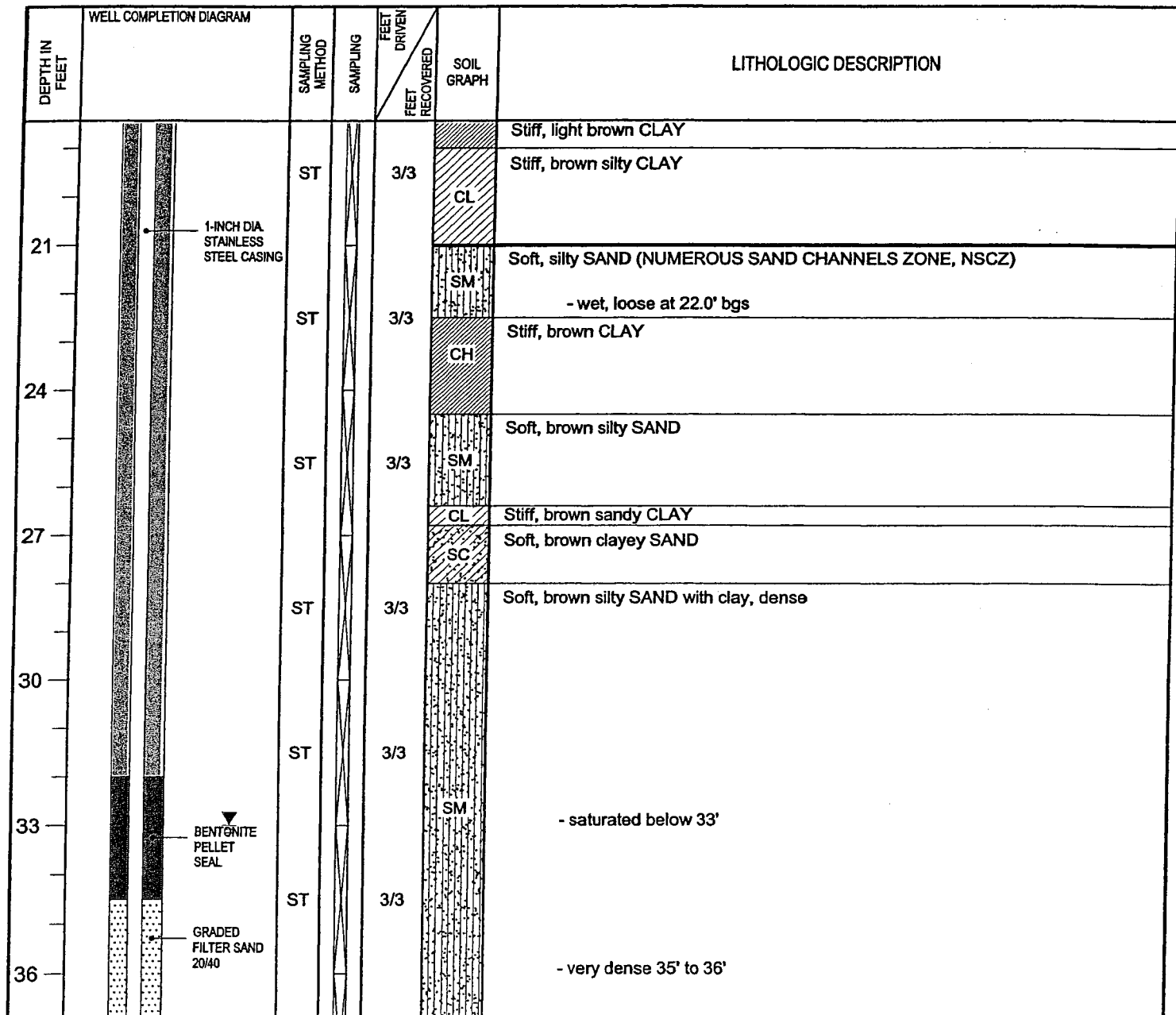
BEDDING LAYER SURFACE ELEV.: 33.0'

ELEVATION (TOC): 33.88'

INITIAL GROUNDWATER DEPTH: 22.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
ST SHELBY TUBE
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D01PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,070.5095 E 3,207,812.7553

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

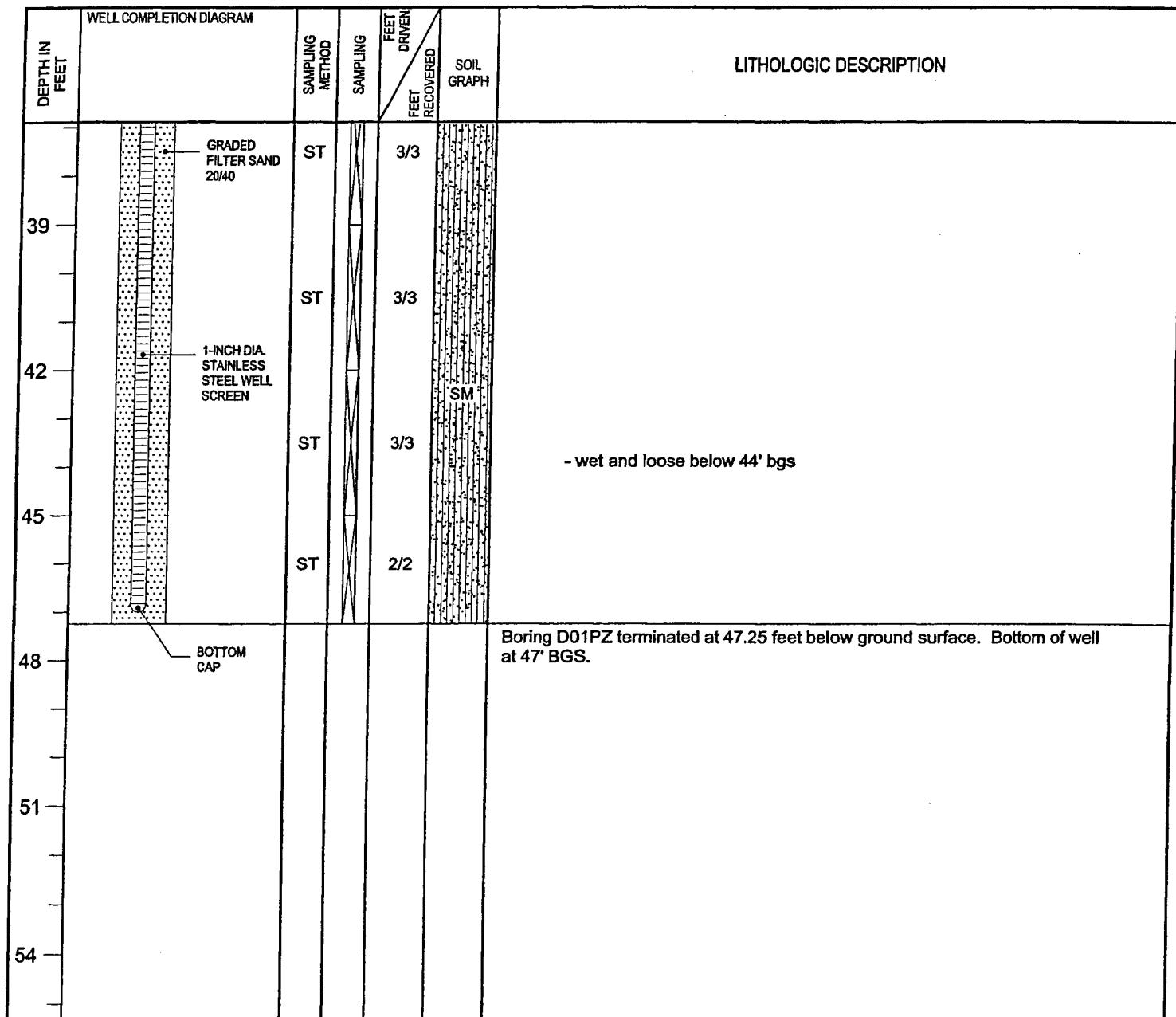
BEDDING LAYER SURFACE ELEV.: 33.0'

ELEVATION (TOC): 33.88'

INITIAL GROUNDWATER DEPTH: 22.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D02PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA: 7 inch

MONITOR WELL DIA: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,946.6023 E 3,207,946.7344

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

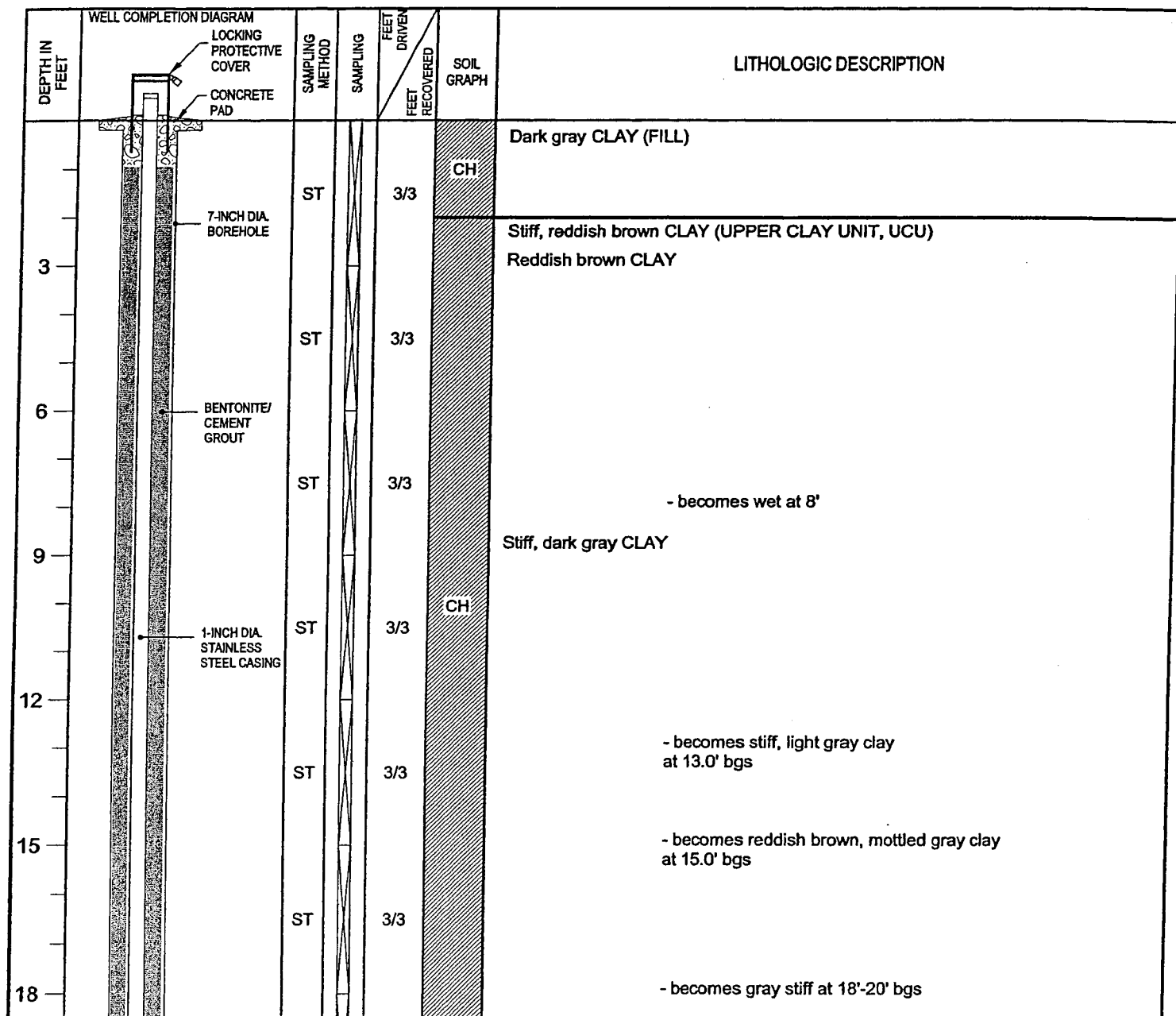
BEDDING LAYER SURFACE ELEV.: 32.6'

ELEVATION (TOC): 34.15'

INITIAL GROUNDWATER DEPTH: 29.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
ST SHELBY TUBE
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO2PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,946.6023 E 3,207,946.7344

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

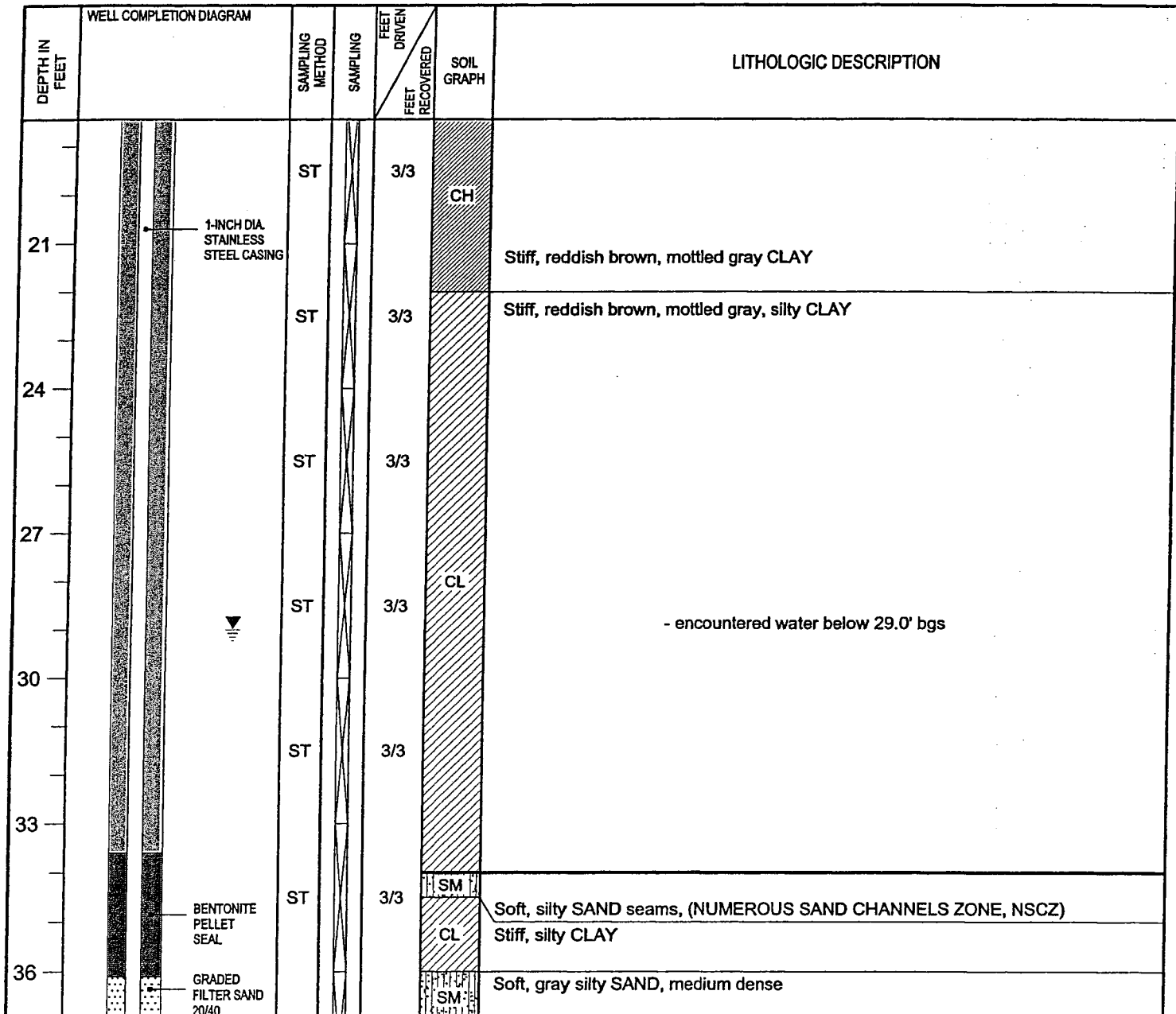
BEDDING LAYER SURFACE ELEV.: 32.6'

ELEVATION (TOC): 34.15'

INITIAL GROUNDWATER DEPTH: 29.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D02PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA: 7 inch

MONITOR WELL DIA: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,946.6023 E 3,207,946.7344

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

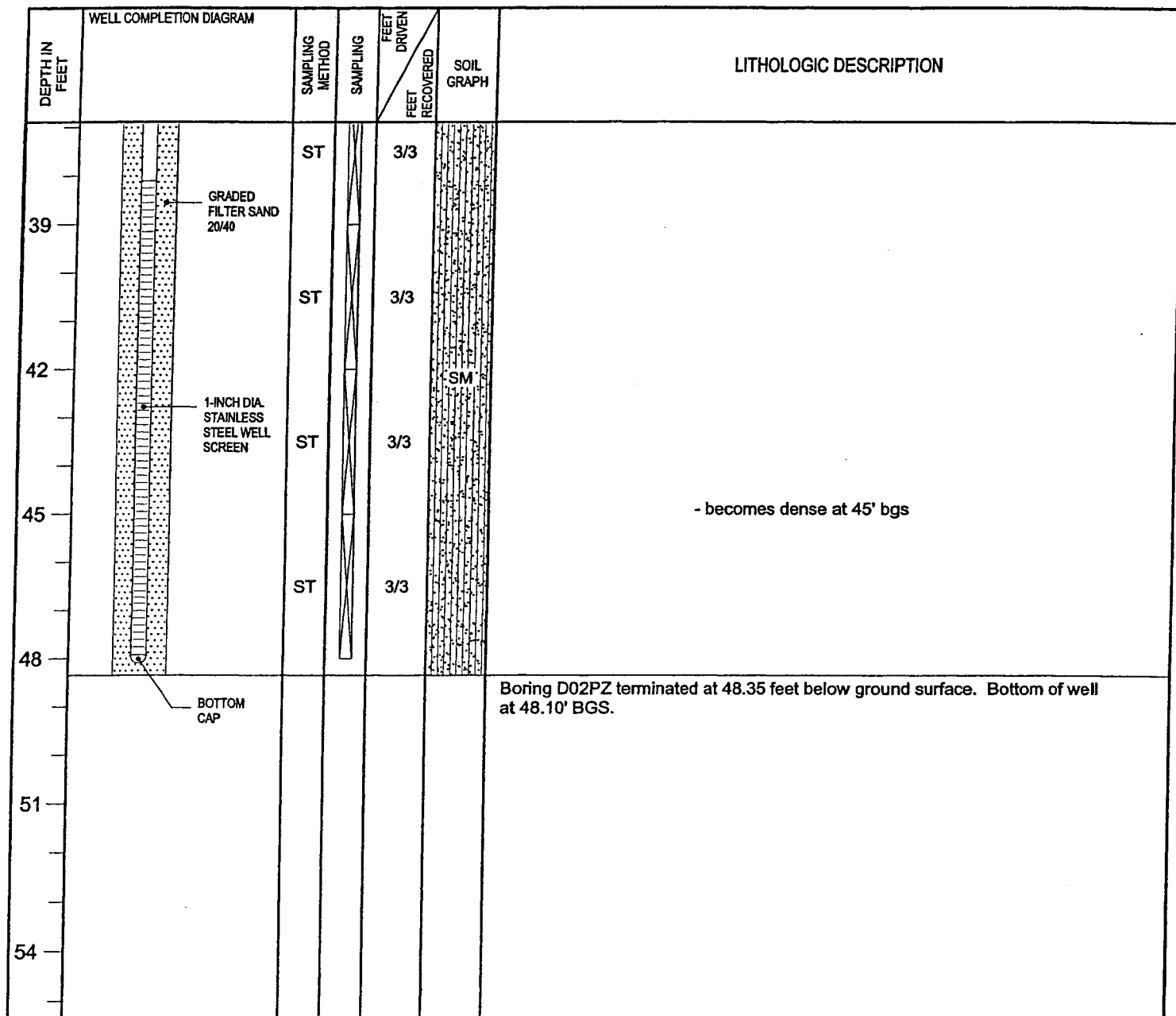
BEDDING LAYER SURFACE ELEV.: 32.6'

ELEVATION (TOC): 34.15'

INITIAL GROUNDWATER DEPTH: 29.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO3PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,882.89

E 3,208,046.04

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

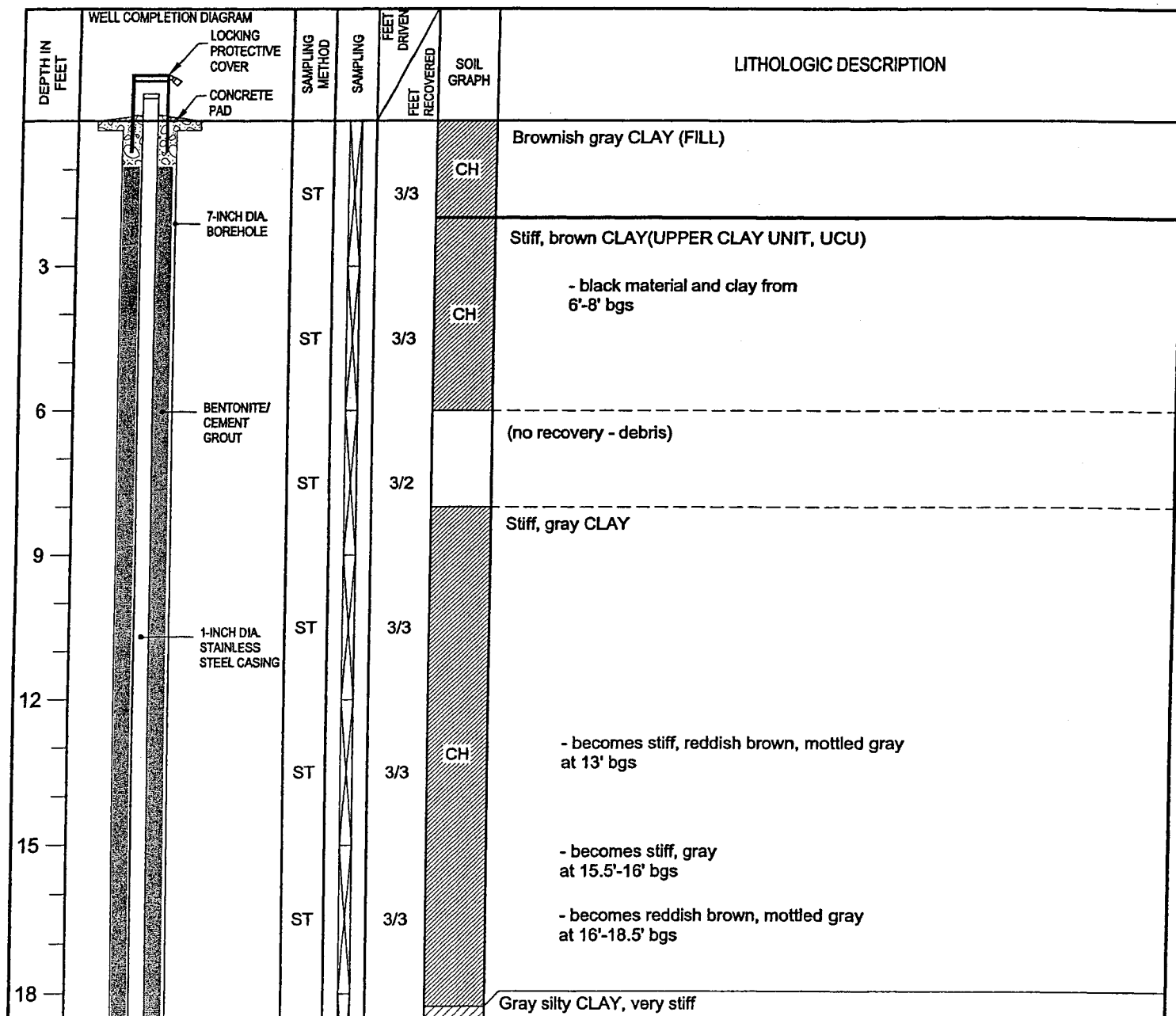
BEDDING LAYER SURFACE ELEV.: 32.8'

ELEVATION (TOC): 34.61'

INITIAL GROUNDWATER DEPTH: 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
ST SHELBY TUBE
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D03PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,882.89

E 3,208,046.04

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

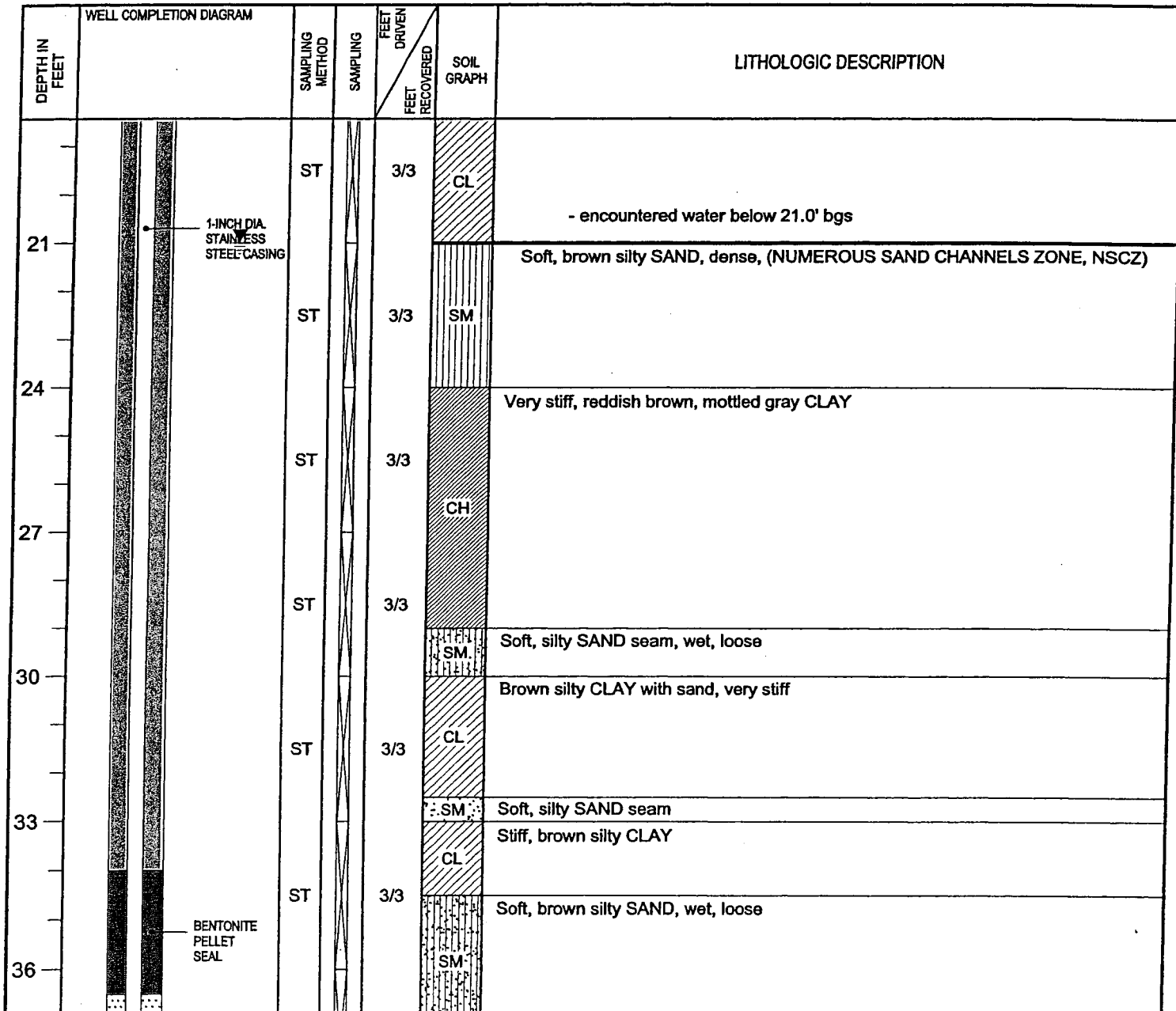
BEDDING LAYER SURFACE ELEV.: 32.8'

ELEVATION (TOC): 34.61'

INITIAL GROUNDWATER DEPTH : 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 ▼ GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D03PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/20/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 650,882.89

E 3,208,046.04

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

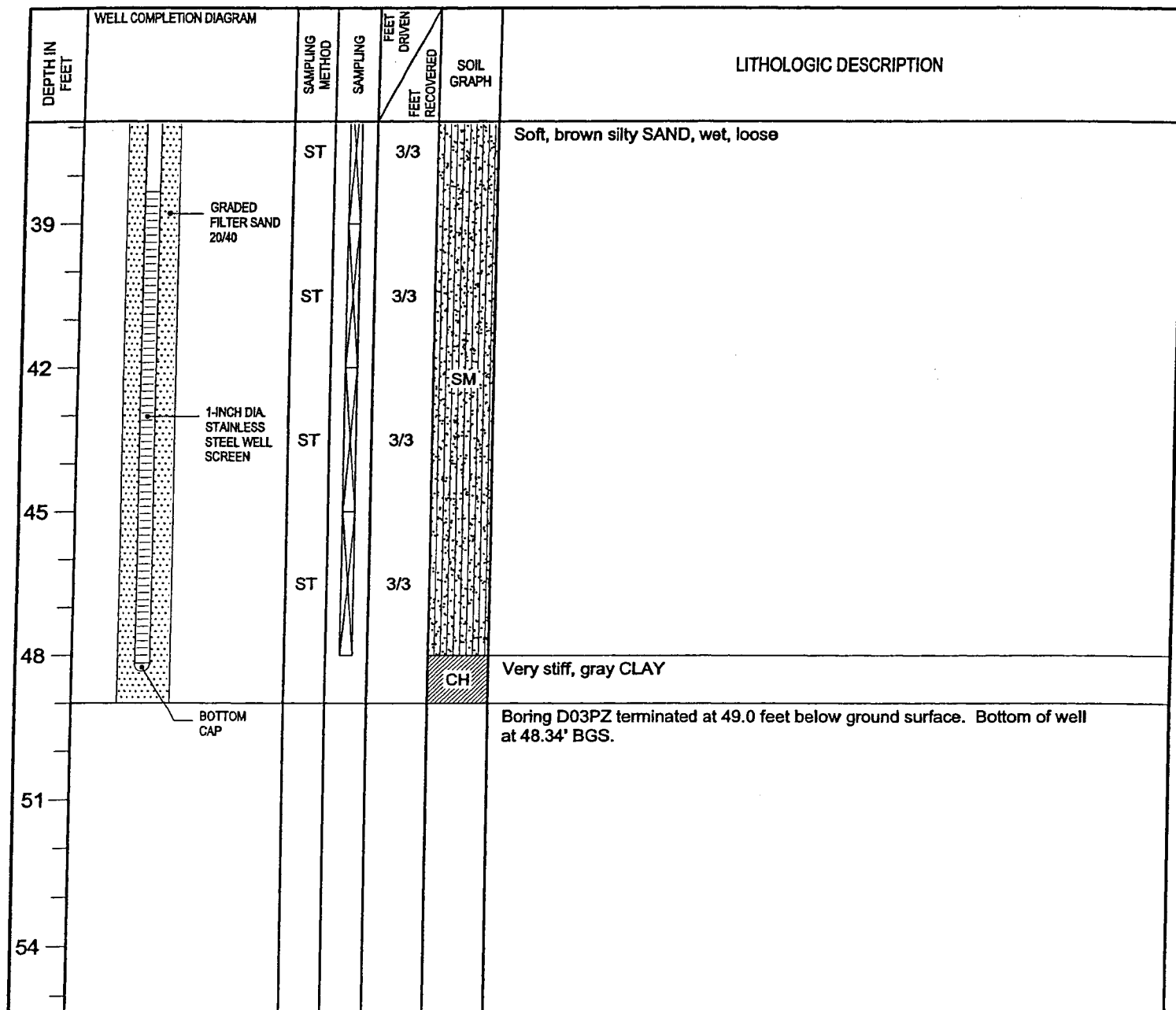
BEDDING LAYER SURFACE ELEV.: 32.8'

ELEVATION (TOC): 34.61'

INITIAL GROUNDWATER DEPTH : 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

SOIL BORING/PIEZOMETER: **DO4PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 8-1/4 in.

MONITOR WELL DIA.: 1 in.

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,387.84

E 3,207,892.07

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

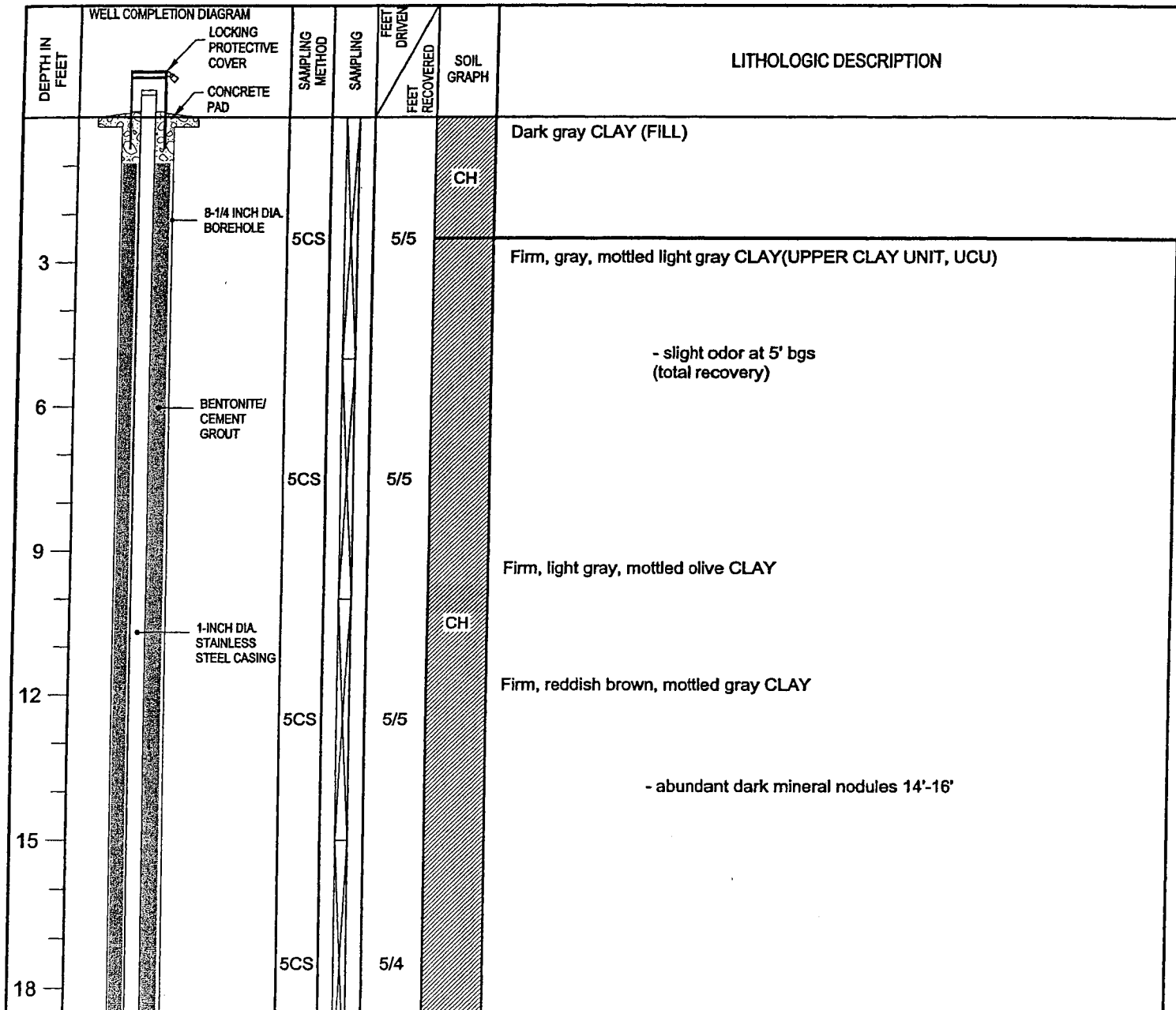
BEDDING LAYER SURFACE ELEV.: 30.5'

ELEVATION (TOC): 31.67'

INITIAL GROUNDWATER DEPTH : 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CORE SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO4PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 8-1/4 in.

MONITOR WELL DIA: 1 in.

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,387.84

E 3,207,892.07

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

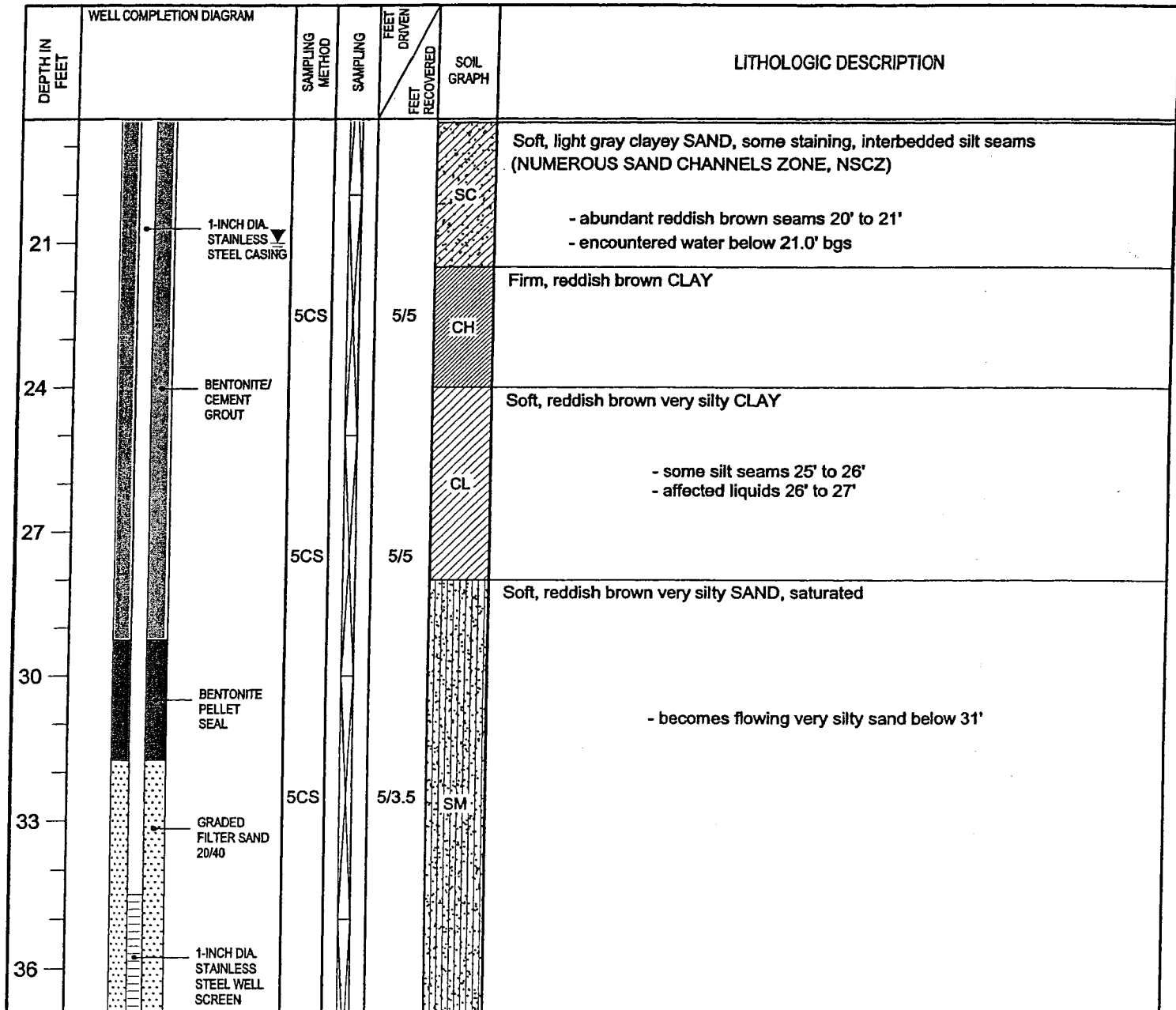
BEDDING LAYER SURFACE ELEV.: 30.5'

ELEVATION (TOC): 31.67'

INITIAL GROUNDWATER DEPTH: 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CORE SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO4PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 8-1/4 in.

MONITOR WELL DIA: 1 in.

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,387.84

E 3,207,892.07

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

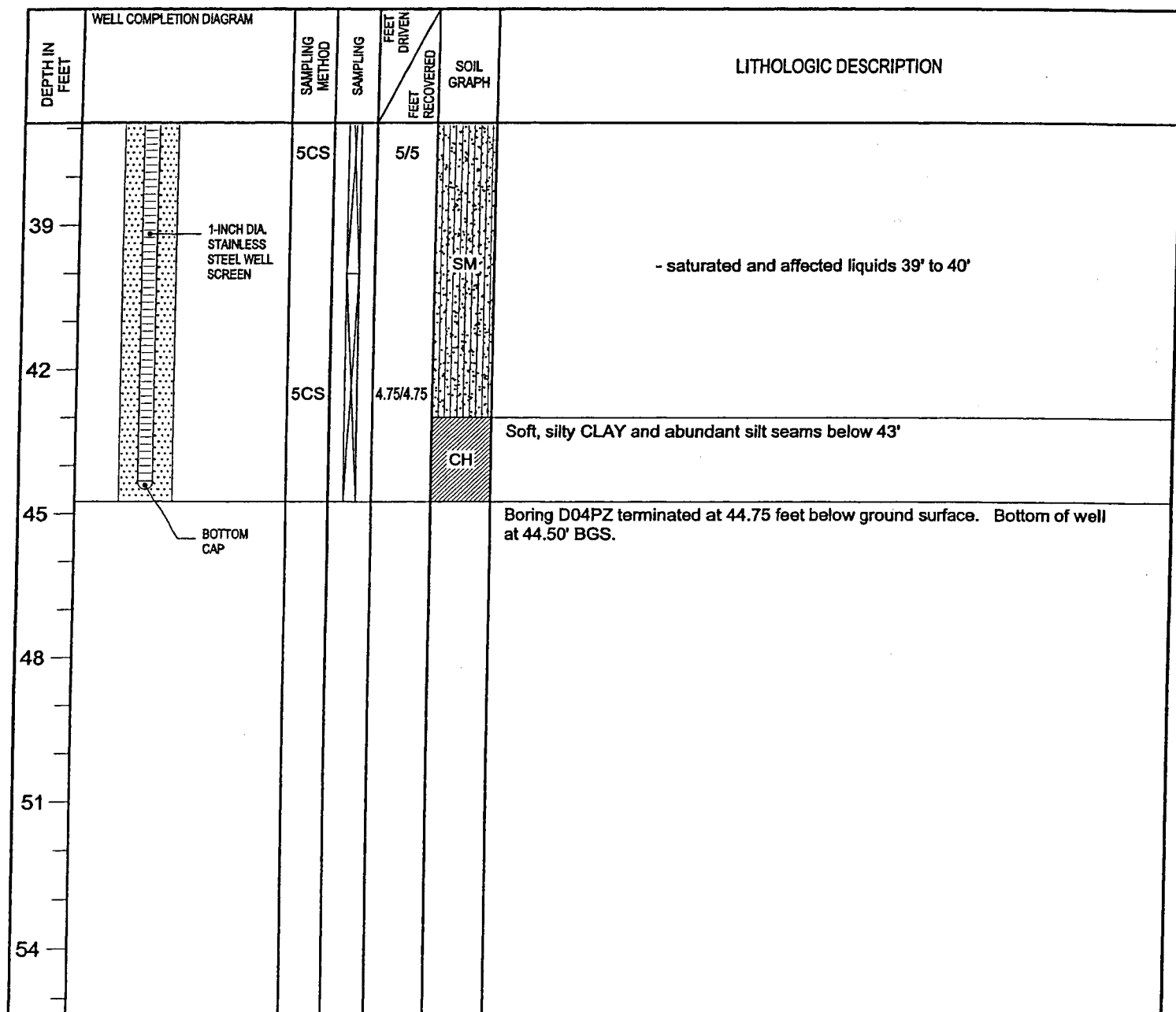
BEDDING LAYER SURFACE ELEV.: 30.5'

ELEVATION (TOC): 31.67'

INITIAL GROUNDWATER DEPTH: 21.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 5CS 5-FOOT CORE SAMPLER
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO5PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 8-1/4 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,290.9511 E 3,208,069.5945

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

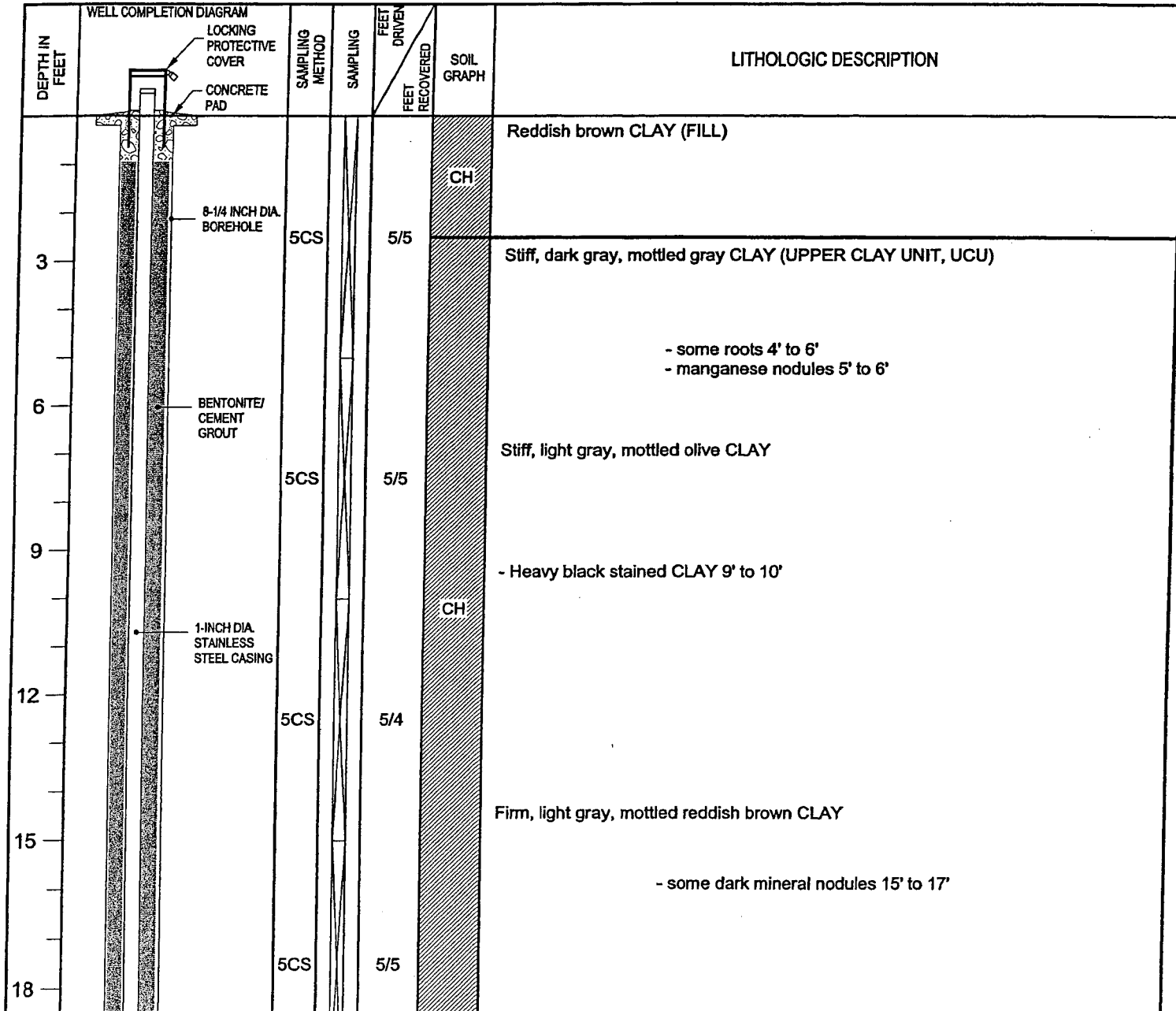
BEDDING LAYER SURFACE ELEV.: 35.7'

ELEVATION (TOC): 37.03'

INITIAL GROUNDWATER DEPTH: 24.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CORE SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO5PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA: 8-1/4 inch

MONITOR WELL DIA: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,290.9511 E 3,208,069.5945

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

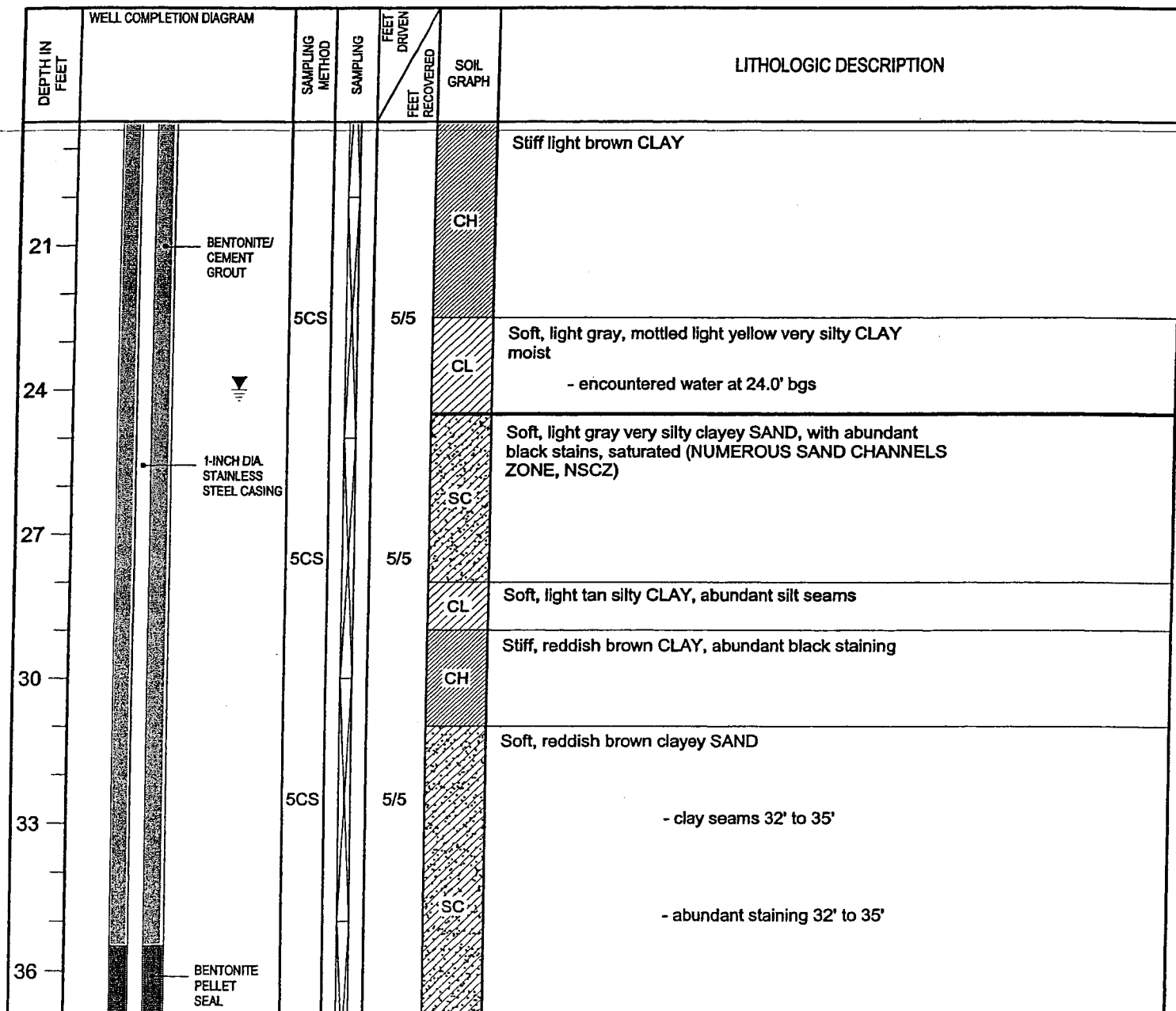
BEDDING LAYER SURFACE ELEV.: 35.7'

ELEVATION (TOC): 37.03'

INITIAL GROUNDWATER DEPTH: 24.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CORE SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▼ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D05PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/16/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: FUGRO

BOREHOLE DIA.: 8-1/4 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,290.9511 E 3,208,069.5945

RIG TYPE: TRUCK-MOUNTED CME 75 ROTARY DRILL

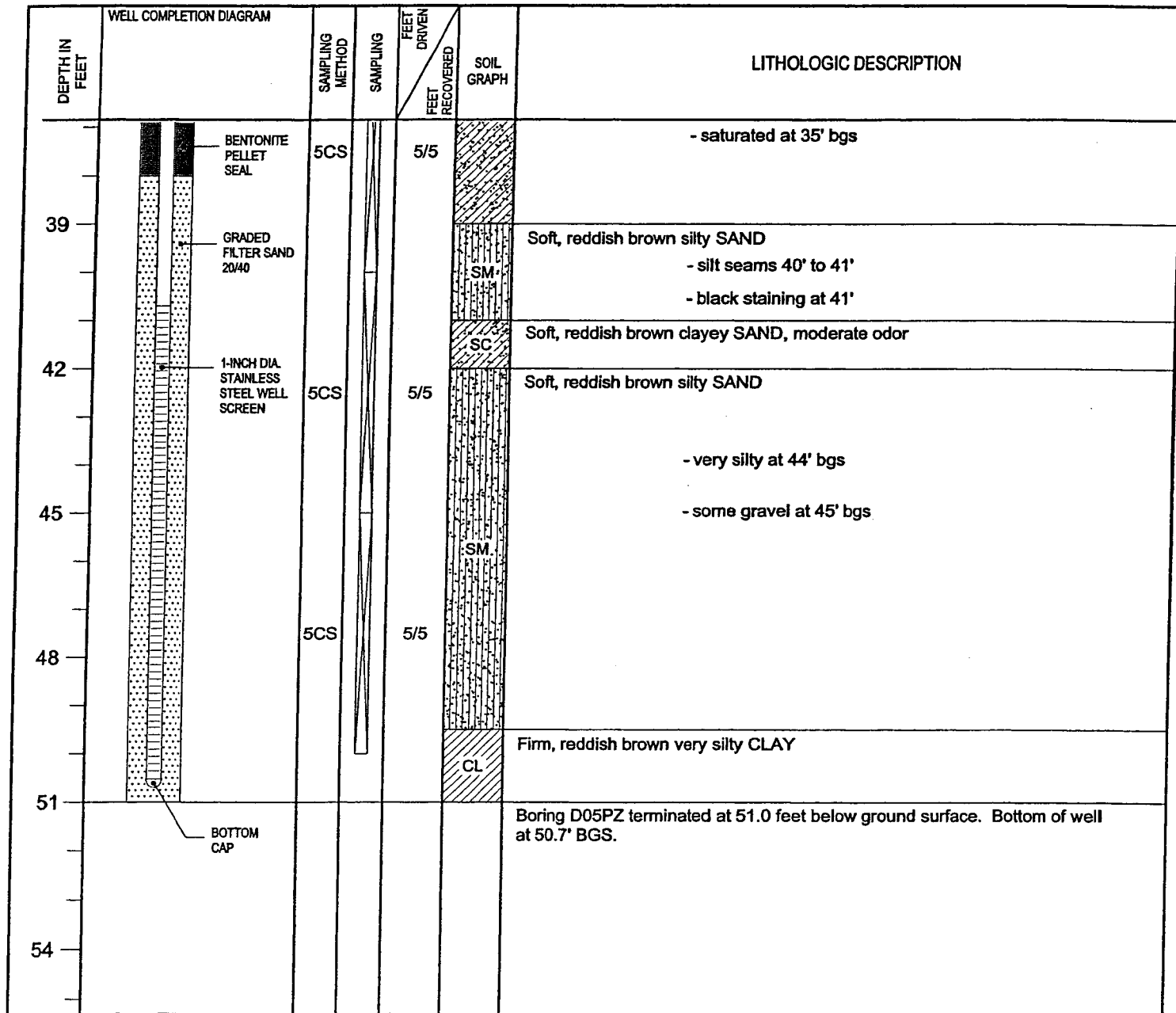
BEDDING LAYER SURFACE ELEV.: 35.7'

ELEVATION (TOC): 37.03'

INITIAL GROUNDWATER DEPTH: 24.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
5CS 5-FOOT CORE SAMPLER
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO6PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,231.67

E 3,208,160.82

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

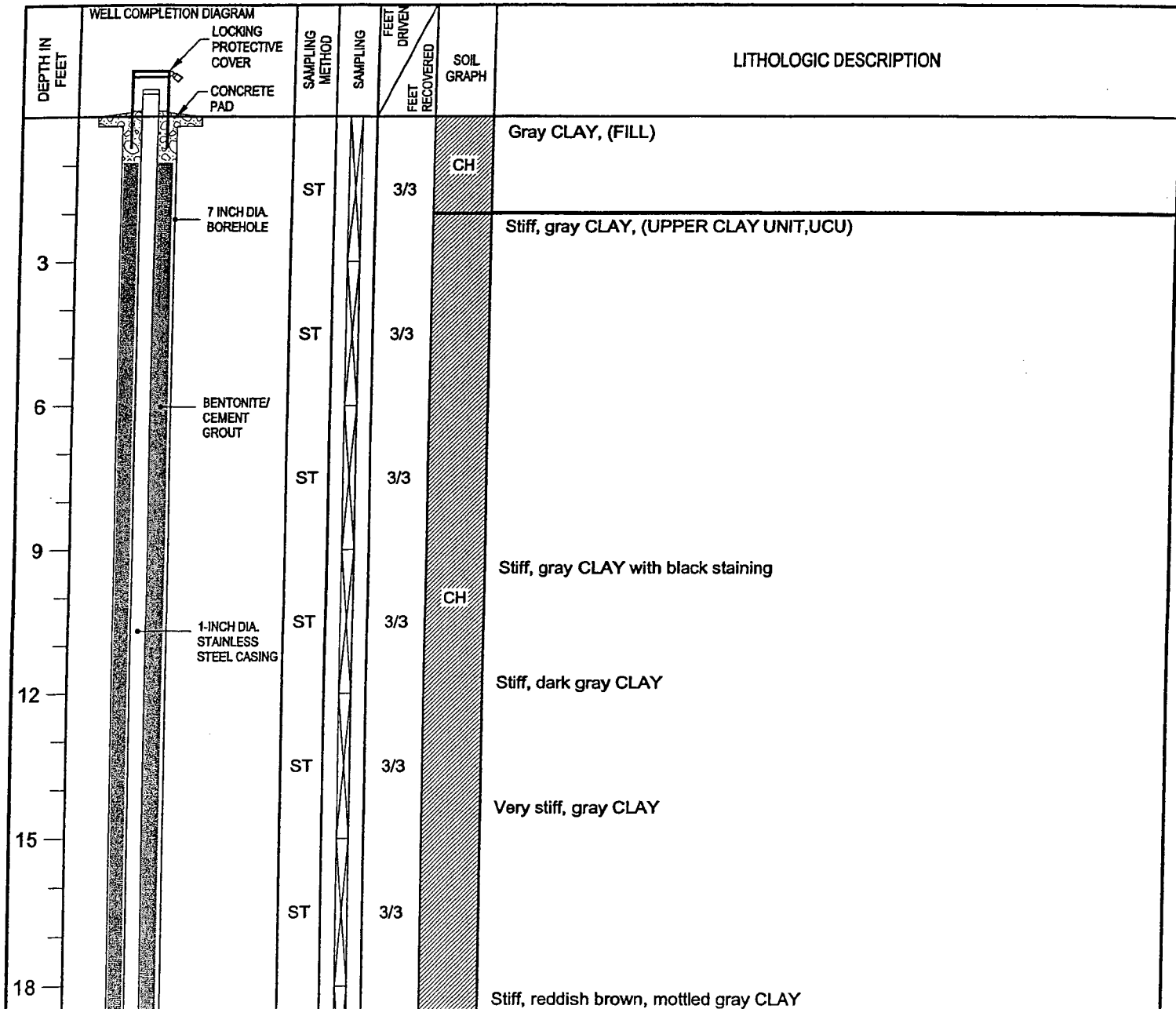
BEDDING LAYER SURFACE ELEV.: 36.7'

ELEVATION (TOC): 37.65'

INITIAL GROUNDWATER DEPTH: 26.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
ST SHELBY TUBE
CT AUGER CUTTING
TOC TOP OF CASING
BTOC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO6PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,231.67

E 3,208,160.82

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

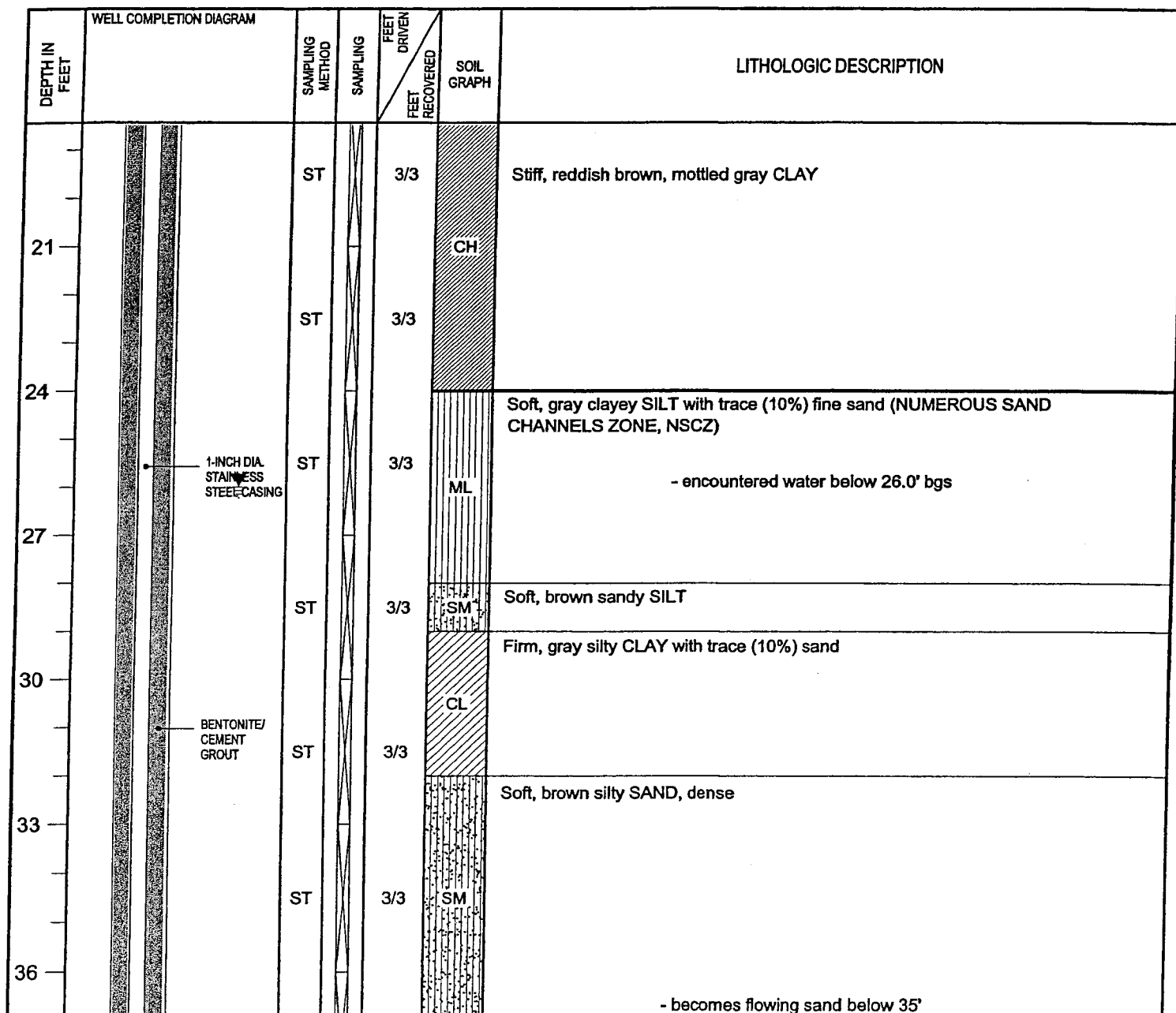
BEDDING LAYER SURFACE ELEV.: 36.7'

ELEVATION (TOC): 37.65'

INITIAL GROUNDWATER DEPTH: 26.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO6PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,231.67

E 3,208,160.82

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

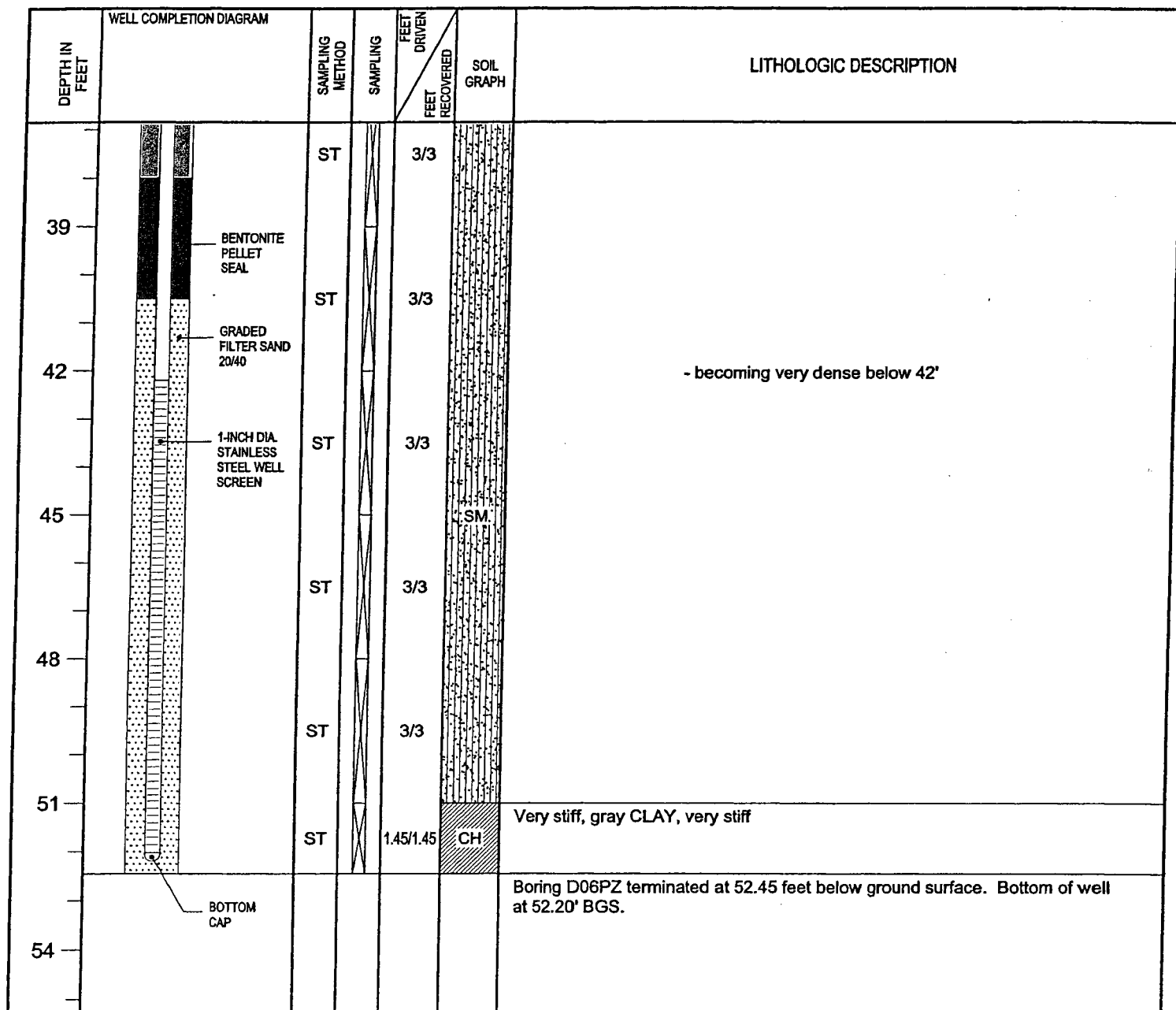
BEDDING LAYER SURFACE ELEV.: 36.7'

ELEVATION (TOC): 37.65'

INITIAL GROUNDWATER DEPTH: 26.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 ▼ GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO7PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,072.6594 E 3,208,276.1871

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

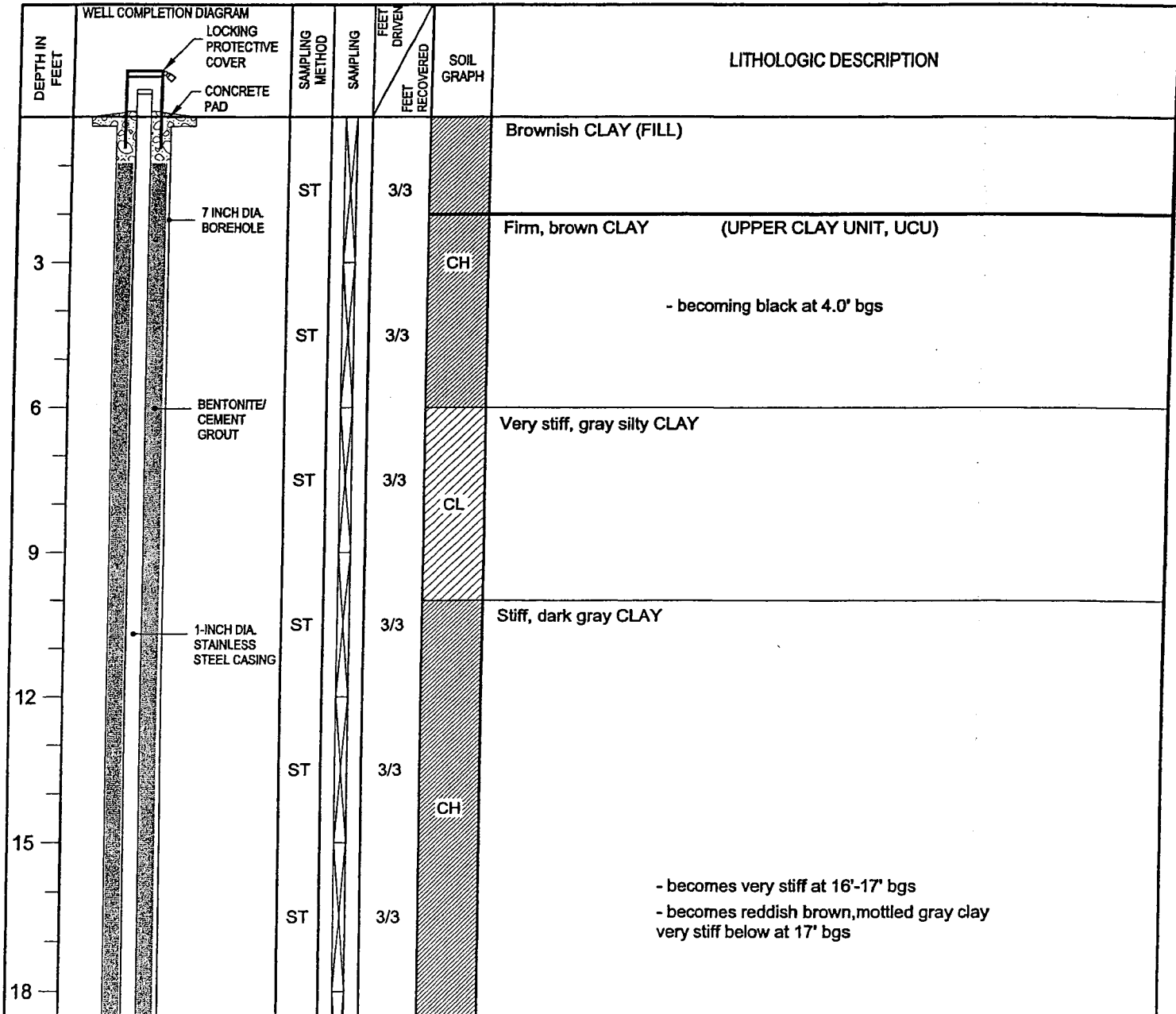
BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 36.15'

INITIAL GROUNDWATER DEPTH : 25.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 ▼ GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO7PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,072.6594 E 3,208,276.1872

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

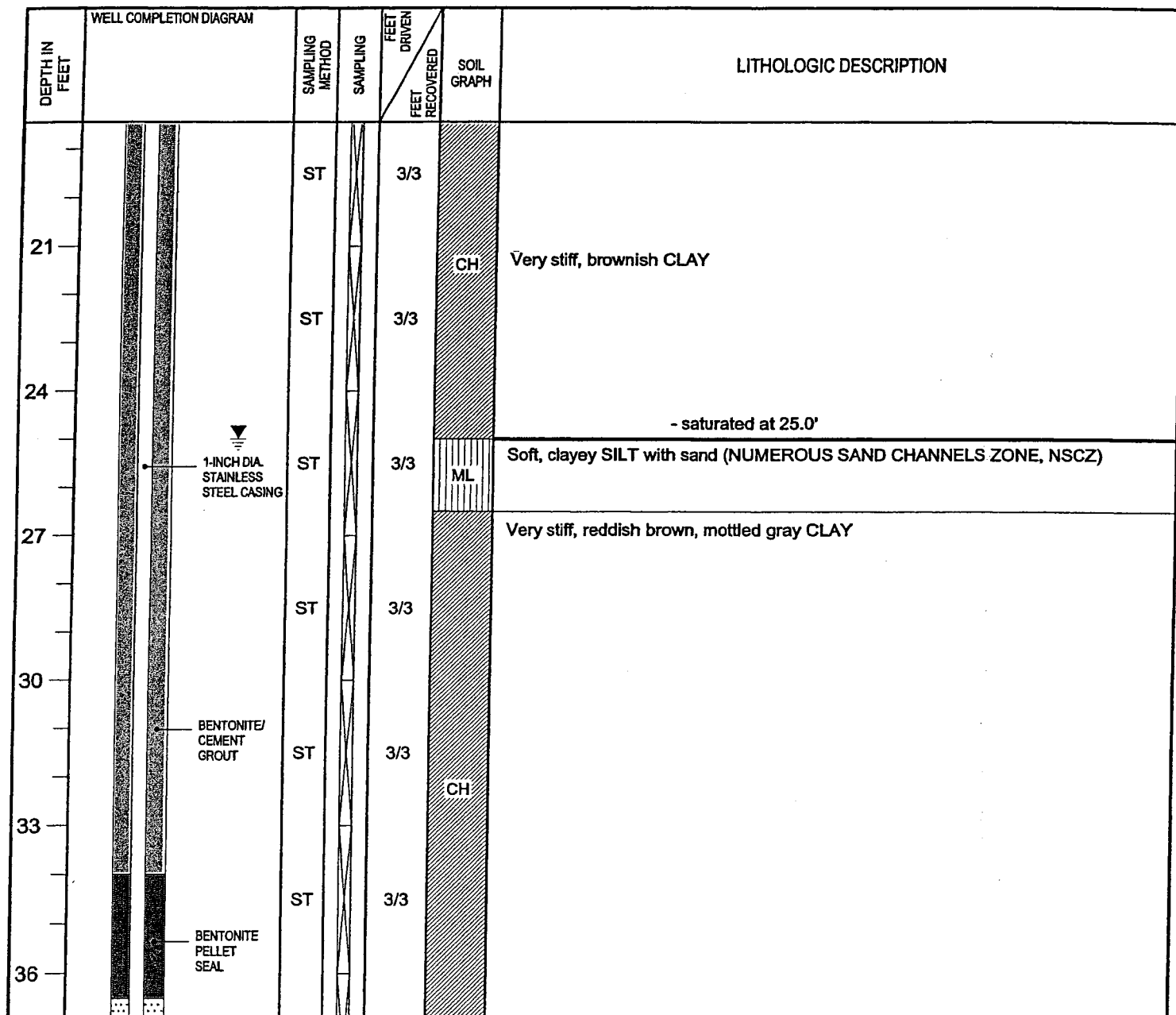
BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 36.15'

INITIAL GROUNDWATER DEPTH : 25.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **D07PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/17/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,072.6594 E 3,208,276.1872

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

BEDDING LAYER SURFACE ELEV.: 35.0'

ELEVATION (TOC): 36.15'

INITIAL GROUNDWATER DEPTH : 25.0' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3

| DEPTH IN FEET | WELL COMPLETION DIAGRAM | SAMPLING METHOD | SAMPLING | FEET DRIVEN FEET RECOVERED | SOIL GRAPH | LITHOLOGIC DESCRIPTION |
|---------------|--|-----------------|----------|-------------------------------|------------|---|
| 39 | <p>GRADED FILTER SAND 20/40</p> <p>1-INCH DIA. STAINLESS STEEL WELL SCREEN</p> <p>BOTTOM CAP</p> | ST | | 3/3 | CH | |
| | | | | | | Soft, gray clayey SAND, very dense |
| | | ST | | 3/3 | SC | |
| 42 | | | | | | Soft, brown silty SAND, very fine, very dense |
| | | ST | | 3/3 | SM | |
| 45 | | ST | | 3/3 | SM | |
| 48 | | ST | | 3/3 | CH | Firm, CLAY seam |
| | | ST | | 2.25/2.25 | SM | Soft, reddish brown silty SAND, very dense |
| 51 | | | | | | Boring D07PZ terminated at 50.25 feet below ground surface. Bottom of well at 48.50' BGS. |
| 54 | | | | | | |

SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO8PZ**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,993.72

E 3,208,390.65

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

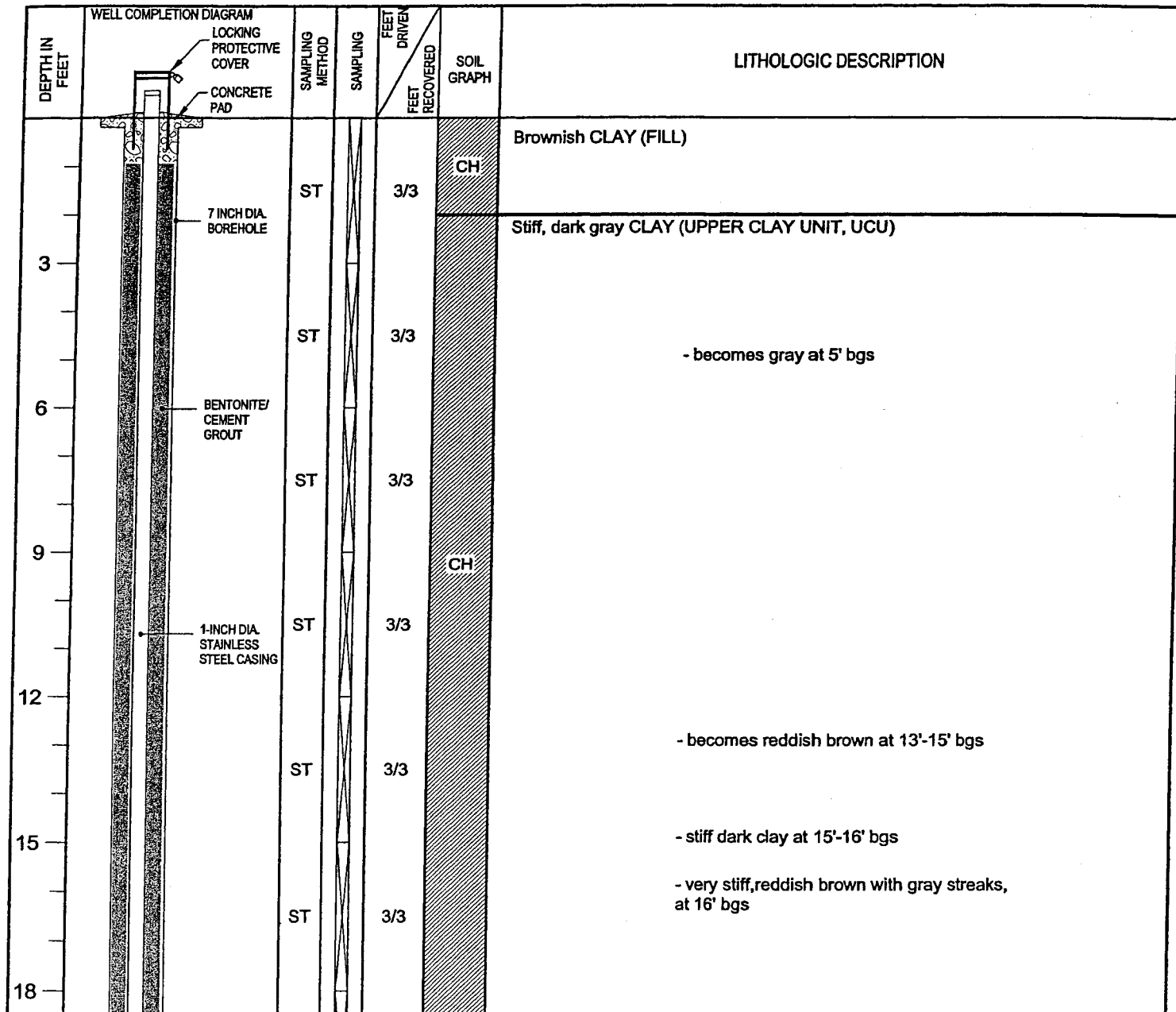
BEDDING LAYER SURFACE ELEV.: 31.8'

ELEVATION (TOC): 35.85'

INITIAL GROUNDWATER DEPTH : 22.50' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 1 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO8PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,993.72

E 3,208,390.65

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

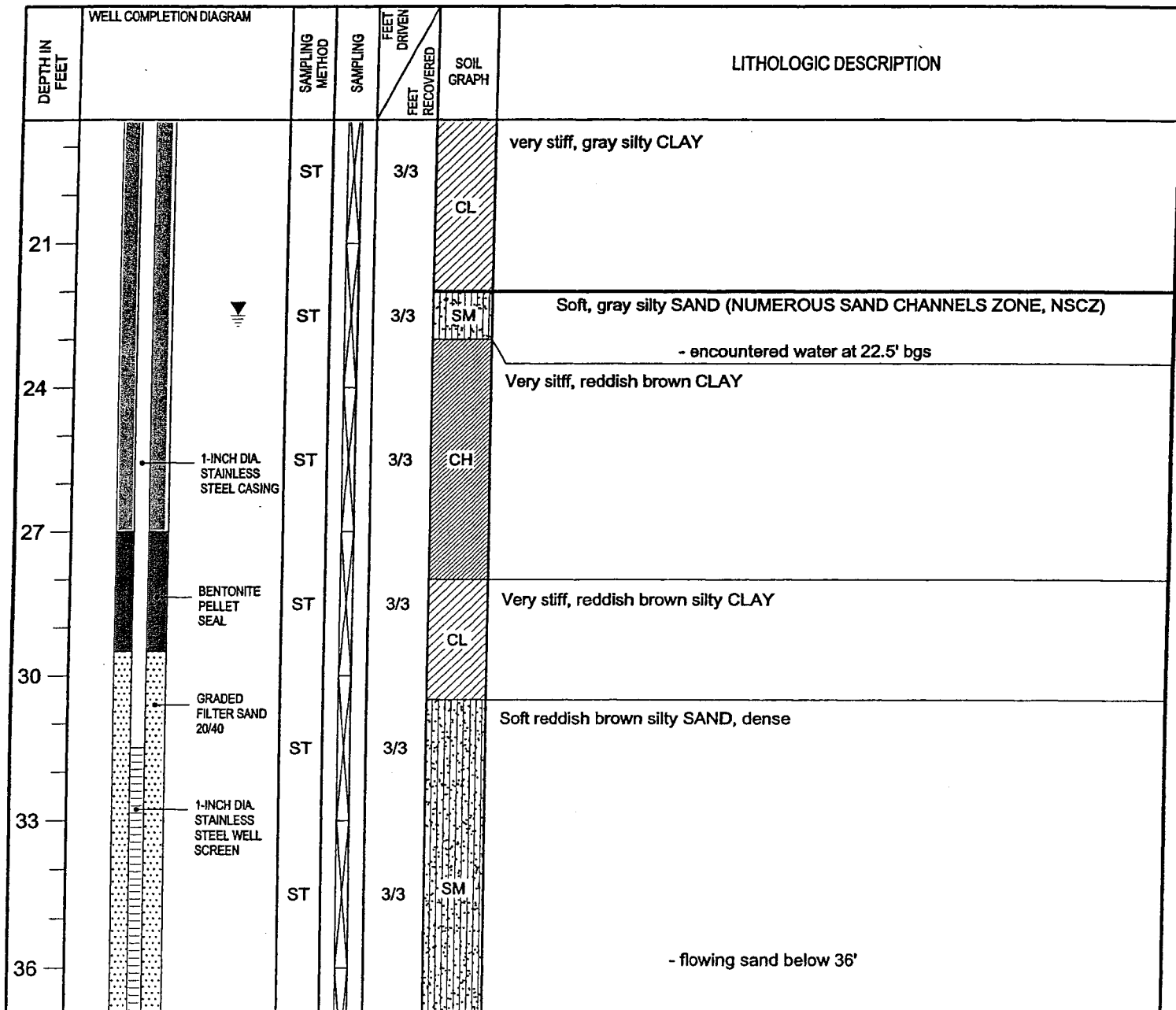
BEDDING LAYER SURFACE ELEV.: 31.8'

ELEVATION (TOC): 35.85'

INITIAL GROUNDWATER DEPTH: 22.50' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 2 OF 3



SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
GP GEOPROBE SAMPLER
ST SHELBY TUBE
CT AUGER CUTTING
TOC TOP OF CASING
BTOTC BELOW TOP OF CASING
BGS BELOW GROUND SURFACE
N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

LP LOCKING PROTECTION (ABOVE GROUND)
FP FLUSHED PROTECTION (GROUND LEVEL)
BCG BENTONITE/CEMENT GROUT
PVC BLANK PVC CASING (1" or 4" DIA.)
BH BOREHOLE
BS BENTONITE SEAL
FS FILTER SAND
SK FILTER SOCK
SSC STAINLESS STEEL CENTRALIZER
SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
▽ GROUNDWATER LEVEL
BC BOTTOM CAP

URS

SOIL BORING/PIEZOMETER: **DO8PZ (cont'd)**

CLIENT: BRIO SITE TASK FORCE

JOB No.: 807621

DATE: 07/18-19/01

SITE: BRIO SOUTH

LOCATION: BRIO SOUTH, HOUSTON, TEXAS

DRILLING CONTRACTOR: CCI

BOREHOLE DIA.: 7 inch

MONITOR WELL DIA.: 1 inch

DRILLING METHOD: HOLLOW-STEM AUGER

COORDINATES: N 651,993.72

E 3,208,390.65

RIG TYPE: TRUCK-MOUNTED B-61 ROTARY DRILL

BEDDING LAYER SURFACE ELEV.: 31.8'

ELEVATION (TOC): 35.85'

INITIAL GROUNDWATER DEPTH: 22.50' BGS

SURFACE CONDITION: BEDDING LAYER CLAY

PAGE: 3 OF 3

| DEPTH IN FEET | WELL COMPLETION DIAGRAM | SAMPLING METHOD | SAMPLING | FEET DRIVEN FEET RECOVERED | SOIL GRAPH | LITHOLOGIC DESCRIPTION |
|---------------|--|-----------------|----------|-------------------------------|------------|--|
| 39 | <p>GRADED FILTER SAND 20/40</p> <p>1-INCH DIA. STAINLESS STEEL WELL SCREEN</p> <p>BOTTOM CAP</p> | ST | | 3/3 | | very dense at 40' |
| 42 | | ST | | 3/3 | SM | |
| | | ST | | 2/2 | | presence mottled gray at 43'-43.5' bgs |
| 45 | | | | | | Boring DO8PZ terminated at 44.0 feet below ground surface. Bottom of well at 41.50' BGS. |
| 48 | | | | | | |
| 51 | | | | | | |
| 54 | | | | | | |

SAMPLER KEY:

SPT STANDARD PENETRATION TEST SAMPLER
 GP GEOPROBE SAMPLER
 ST SHELBY TUBE
 CT AUGER CUTTING
 TOC TOP OF CASING
 BTOC BELOW TOP OF CASING
 BGS BELOW GROUND SURFACE
 N/A NOT APPLICABLE or NOT AVAILABLE

WELL COMPLETION KEY:

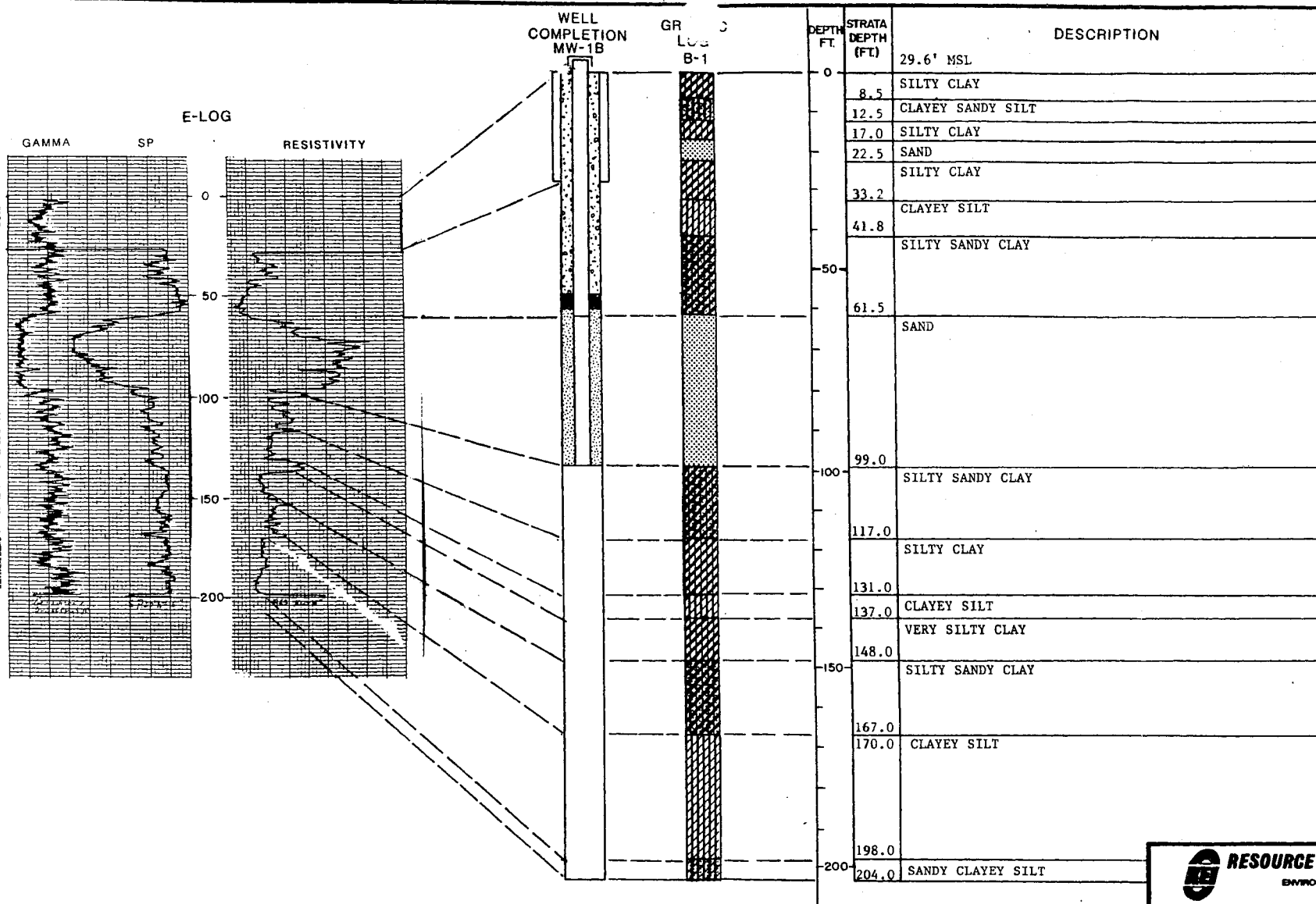
LP LOCKING PROTECTION (ABOVE GROUND)
 FP FLUSHED PROTECTION (GROUND LEVEL)
 BCG BENTONITE/CEMENT GROUT
 PVC BLANK PVC CASING (1" or 4" DIA.)
 BH BOREHOLE
 BS BENTONITE SEAL
 FS FILTER SAND
 SK FILTER SOCK
 SSC STAINLESS STEEL CENTRALIZER
 SCR SCREEN, SLOTTED PVC (1" or 4" DIA.)
 GROUNDWATER LEVEL
 BC BOTTOM CAP

URS

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

APPENDIX E

FFSZ MONITORING WELL INSTALLATION LOGS

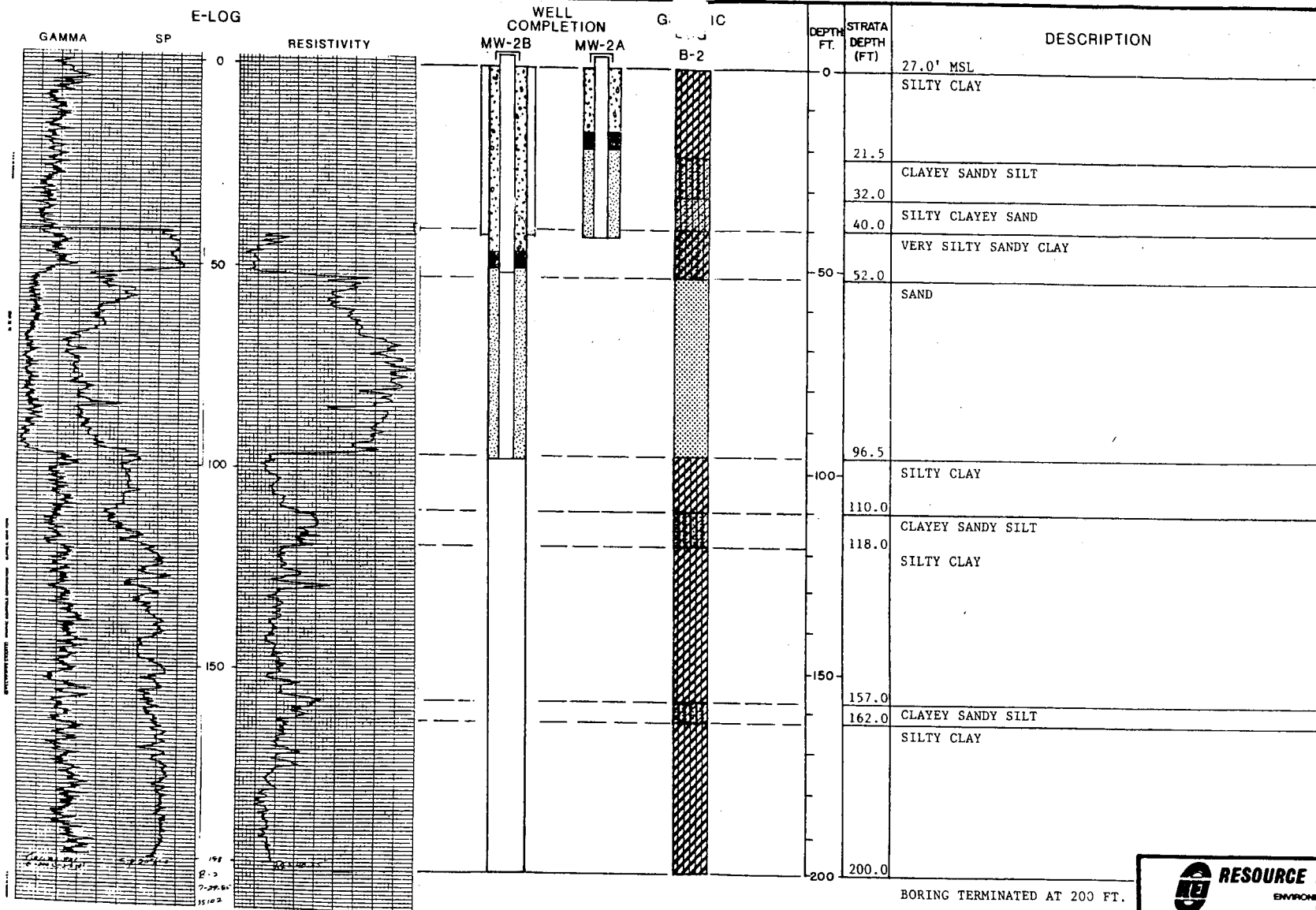


RESOURCE ENGINEERING INC.

ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

**E-LOG, GRAPHIC LOG OF B-1,
WITH MONITOR WELL INSTALLATION
DETAILS OF MW-1B**

| | | |
|--------------|---------------|---------------------|
| DRAWN BY: SJ | DATE: 12/3/85 | PROJECT NO.: 351-02 |
|--------------|---------------|---------------------|

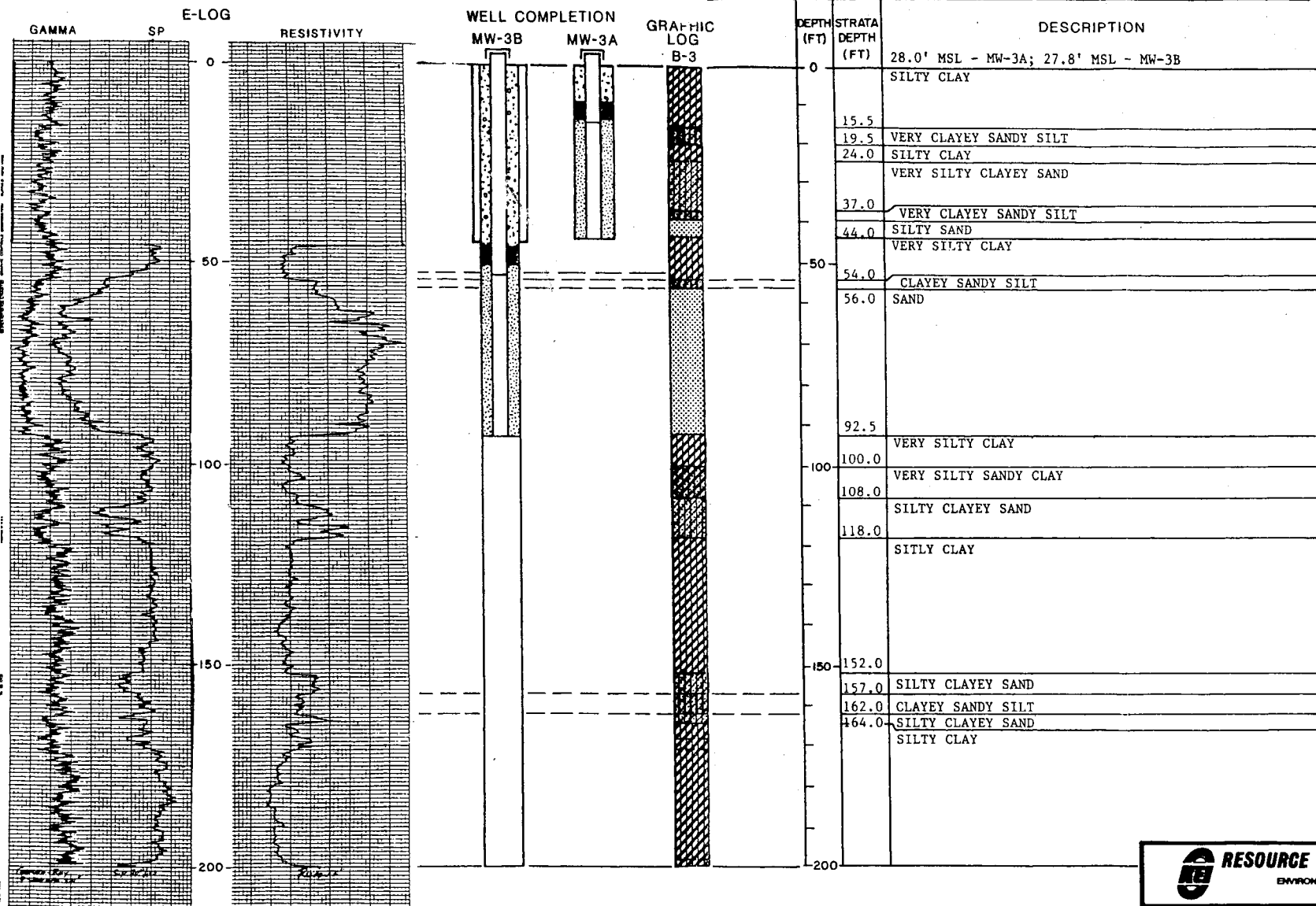


RESOURCE ENGINEERING INC.

ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

**E-LOG, GRAPHIC LOG OF
B-2, WITH MONITOR WELL
INSTALLATION DETAILS
OF MW-2B AND MW-2A**

| | | |
|--------------|---------------|---------------------|
| DRAWN BY: 6j | DATE: 12/3/85 | PROJECT NO.: 351-02 |
|--------------|---------------|---------------------|



RESOURCE ENGINEERING INC.

ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

**E-LOG, GRAPHIC LOG OF B-3, WITH
MONITOR WELL INSTALLATION
DETAILS OF MW-3B AND MW-3A**

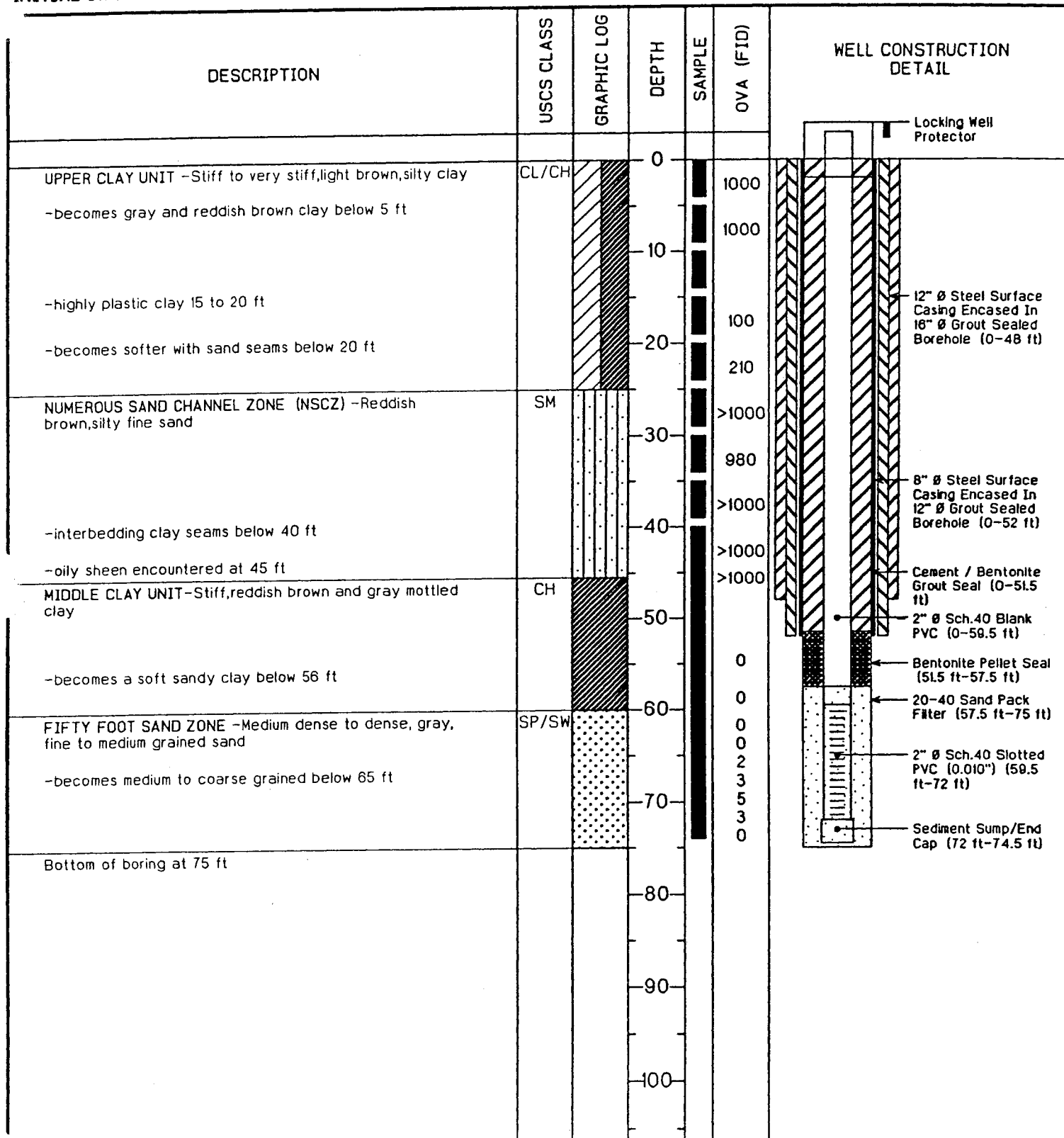
DRAWN BY: sj DATE: 12/3/85 PROJECT NO. 351-02

Monitoring Well No. BMW-18B

PROJECT: BR10 USGS RESPONSE PROJECT
 DRILL RIG: GUS PECH-1000GPR
 INITIAL GW DEPTH: ft.

DATE: 12-03-92
 HOLE DIA: 8 in.
 FINAL GW: ft.

LOGGED BY: CUSACK/ANDERSON
 SAMPLER: 4-FT SPLIT SPOON
 HOLE ELEV:



WOODWARD-CLYDE

Environmental Consultants
 Houston, Texas

Notes:

Project No.
 92T317C

Page 1 of 1

DMW-52B

**WELL INSTALLATION LOG
NOT AVAILABLE**

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

APPENDIX F

**DNAPL RECOVERY PROGRAM
(FIELD CHANGE ORDER 18)**

BRIO SITE TASK FORCE

Site Office

2501 Dixie Farm Rd. • Houston, Texas 77089 • (281) 481-1261 • FAX (281) 481-0539

June 28, 2000

Mr. John Meyer
U.S. Environmental Protection Agency
Region VI, Superfund Enforcement Section
1445 Ross Avenue
Dallas, Texas 75202-2733

HAND DELIVER

BSTF/EPA-1512.00

Re: Brio - DNAPL Recovery Project
Field Change Order No. 018

Dear Mr. Meyer:

Attached is the approved Field Change Order (FCO) No. 018 to the DNAPL Recovery Project. This FCO deals with implementing the final DNAPL recovery program.

If you have any questions, please call.

Sincerely,



Lawrence E. Engle, P. E.
Project Manager

LEE:slb
Attachment

cc: S. Smith - Solutia
BSTF File

BRIO - DNAPL RECOVERY PROJECT

REQUEST FOR FIELD CHANGE ORDER

FIELD CHANGE ORDER: #018

DATE: June 22, 2000

TITLE: DNAPL Transition Plan

BRIEF DESCRIPTION OF CHANGE:

This FCO presents a Pit J transition plan from the current pre-cover DNAPL recovery program that has been operational for 5 years to the post-cover DNAPL recovery program. Information collected over the past several years provides the basis for this transition plan.

Summary of Post-Closure DNAPL Recovery Plan

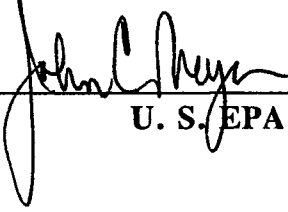
1. Maintain the same well abandonment criteria.
2. Install thirteen (13) 2" replacement wells at existing well locations to optimize DNAPL production based on proven DNAPL recovery performance.
3. Install six (6) fully penetrating NSCZ groundwater recovery wells in the Pit J area to assist in DNAPL recovery.
4. Install suitable pumps to recover DNAPL in wells identified in 2 and 3.

Designated DNAPL Recovery Wells - Table 1 presents operational data collected from 1999 to date. The top thirteen (13) DNAPL producing wells are nos. 13, 14, 21, 22, 23, 29, 30, 31, 37, 38, 39 45 and 46. A 2" replacement well will be installed using push technology immediately adjacent to these 13 wells and at the same time as the groundwater recovery wells are installed. Figure 1 shows the locations of the 13 wells. DNAPL and groundwater from each of the 13 wells will be pumped to a collection tank (located with a building at the cover peak). The DNAPL fluids would then be transferred to the Water Treatment Plant (WTP) for separation and disposal.

Groundwater Recovery Wells - Six (6) groundwater recovery wells surrounding the Pit J area will be constructed to recover available DNAPL. The location of wells is shown in Figure 1. Specifically, these wells will be constructed to fully penetrate the NSCZ. Pumps (or pump settings) will be installed to recover DNAPL as well as groundwater.

Pumps - Existing pumps are incapable of recovering DNAPL once the site cover is installed. The use of larger diameter wells permits the use of pumps capable of extracting DNAPL from the wells. The actual pump type and pump construction materials are currently being evaluated. Candidate pumps include QED Hammerhead (pulse pump) or Blackhawk Anchor (direct displacement pump).

SUBMITTED:  DATE: 6/28/00
BRIO SITE TASK FORCE

APPROVED:  DATE: 6/28/00
U. S. EPA

| OPERATIONAL DATA | | | | | | | | | |
|------------------|-------------------------------|--------------------------------|------------------------------|----------------|----------------------------|-------------------------------|--------------------------------|-----------------------------|----------------|
| WELL ID | 1999 | | | | | 2000 | | | |
| | Annual DNAPL Production [gal] | Average Daily DNAPL Production | Percent of Annual Production | Ranking (by %) | Ranking (Avg. Daily Prod.) | Annual DNAPL Production [gal] | Average Daily DNAPL Production | Percent of Total Production | Ranking (by %) |
| J P6-13 | 601 | 2.4 | 4% | 9 | 9 | 214 | 3.3 | 5% | 7 |
| J P6-14 | 923 | 3.9 | 6% | 5 | 5 | 112 | 5.9 | 3% | 11 |
| J P6-21 | 817 | 3.2 | 5% | 6 | 6 | 213 | 3.9 | 5% | 8 |
| J P6-22 | 713 | 2.8 | 5% | 7 | 7 | 357 | 5.5 | 9% | 3 |
| J P6-23 | 523 | 2.1 | 3% | 10 | 10 | 100 | 1.6 | 2% | 12 |
| P6-26 | 123 | 0.5 | 1% | 19 | 20 | | | | |
| P6-27 | 185 | 0.8 | 1% | 17 | 18 | | | | |
| P6-28 | 328 | 1.4 | 2% | 14 | 14 | | | | |
| J P6-29 | 2,214 | 8.8 | 14% | 2 | 2 | 640 | 9.6 | 15% | 1 |
| J P6-30 | 1,681 | 6.7 | 11% | 3 | 3 | 260 | 3.9 | 6% | 6 |
| J P6-31 | 474 | 1.9 | 3% | 13 | 13 | 182 | 3.0 | 4% | 9 |
| P6-36 | 230 | 0.9 | 1% | 16 | 17 | 23 | 0.6 | 1% | 17 |
| J P6-37 | 500 | 2 | 3% | 11 | 11 | 181 | 2.7 | 4% | 10 |
| u P6-38 | 2,398 | 9.5 | 15% | 1 | 1 | 587 | 9.2 | 14% | 2 |
| u P6-39 | 1,096 | 4.3 | 7% | 4 | 4 | 341 | 5.2 | 8% | 4 |
| P6-43** | 26 | 1.2 | 0% | 20 | 15 | 26 | 0.6 | 1% | 16 |
| J P6-45 | 615 | 2.4 | 4% | 8 | 8 | 94 | 1.9 | 2% | 13 |
| u P6-46 | 497 | 2 | 3% | 12 | 12 | 285 | 4.3 | 7% | 5 |
| P6-47* | 250 | 1 | 2% | 15 | 16 | 86 | 1.4 | 2% | 14 |
| P6-48* | 140 | 0.6 | 1% | 18 | 19 | 82 | 1.3 | 2% | 15 |

BOLD typeface indicates continuous producing wells

Indicates DNAPL production which exceeds 1.5 gpd

* Added to continuous program in December 1999

** No longer uses an IRU

FIGURE 1

**PREVIOUSLY
SUBMITTED TO EPA**

(D-SIZE DRAWING)

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

APPENDIX G

**DNAPL SHIPPING AND MANIFEST
PROCEDURE AND FORMS**

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

Brio Site Task Force

Subject: Hazardous Materials Shipping

Effective Date: AUGUST 2003

1.0 PURPOSE

This policy describes the reasons and requirements for completing hazardous materials transportation shipping papers and identifies the method to accomplish the task.

1.1 The Hazardous Waste Manifest System is a set of forms, reports, and procedures designed to seamlessly track hazardous waste from the time it leaves the generator facility where it was produced, until it reaches the off-site waste management facility that will store, treat, or dispose of the hazardous waste. The system allows the waste generator to verify that its waste has been properly delivered, and that no waste has been lost or unaccounted for in the process.

1.2 The key component of this system is the Uniform Hazardous Waste Manifest which is a form prepared by all generators who transport, or offer for transport, hazardous waste for off-site treatment, recycling, storage, or disposal. Currently, the manifest is a paper document containing multiple copies of a single form. When completed, it contains information on the type and quantity of the waste being transported, instructions for handling the waste, and signature lines for all parties involved in the disposal process. The manifest is required by the Department of Transportation (DOT), the Environmental Protection Agency (EPA), and the State of Texas. Each party that handles the waste signs the manifest and retains a copy. This ensures critical accountability in the transportation and disposal processes. Once the waste reaches its destination, the receiving facility returns a signed copy of the manifest to the generator, confirming that the waste has been received by the designated facility. (See attachment 1 for manifest routing.)

1.3 The current Hazardous Waste Manifest is a joint undertaking by the EPA, the DOT, and the state of Texas. The EPA is responsible for regulating hazardous waste under a Federal statute known as the Resource Conservation and Recovery Act (RCRA). This Act requires that all hazardous waste shipped off-site be tracked from "cradle-to-grave" using a manifest that provides information about the generator of the waste, the facility that will receive the waste, a description and quantity of the waste (including the number and type of containers), and how the waste will be routed to the receiving facility. Because hazardous waste is also regulated by the DOT under its hazardous

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

materials laws, the Manifest was developed to meet both EPA's requirements for a manifest, and DOT's requirements for "shipping papers.

2.0 SCOPE

This policy applies to all Brio Site Task Force hazardous waste shipments. The DOT is responsible for regulating and enforcing the regulations, published in the Code of Federal Regulations, (CFR) 49, which governs the transportation of hazardous materials in the United States. This SOP can not detail each and every requirement which may apply. For more detailed information, consult the applicable regulations.

3.0 DEFINITIONS

Competent person: An employee who is trained and capable of identifying the appropriate specific form to use as prescribed by the DOT and the EPA as-well-as the hazard class, proper shipping name, identification number, and packing group number.

Qualifications of competent persons must be documented in writing. The DOT specifies that employers must ensure that employees engaged in hazardous materials shipping are trained to a level of General Awareness about the DOT hazardous materials regulations which govern the classification, identification and shipping of hazardous materials the employee may encounter in their job. Familiarization training must occur every two (2) years.

4.0 REQUIREMENTS

In preparing a hazardous material for transportation it is the shipper's responsibility to properly classify the material according to criteria established by the DOT, 49 CFR 172.101, 173.121, 173.150 (b) (2), and the EPA, 40 CFR 261 and 262.

4.1 Responsibilities:

- 4.1.1** A generator who transports, or offers for transportation, hazardous waste for off-site management, prepares a Uniform Hazardous Waste Manifest form, TCEQ form 0311 (Rev. 09/01/02) or the most recent revised form, following the instructions included in this SOP, CFR 40, and 49 as well as the profile (the properties and composition of material that make up the stream ID) description provided for Dense Non-Aqueous Phase Liquid (DNAPL) as

BRIO SITE TASK FORCE

MAINTENANCE, OPERATIONS, AND MONITORING PLAN

assessed from sampling and agreed upon with the incineration facility.

- 4.1.2** A competent person shall classify and assign the appropriate coding for shipments on the Uniform Hazardous Waste Manifest (See Attachment #2 for an example of the Uniform Hazardous Waste Manifest form) in accordance with 49 CFR 172.101, 173.121, 173.150 (b) (2), and the EPA, 40 CFR 261, 262, and appropriate profile data assigned by sampling.
 - 4.1.2.1** The Competent Person also must complete a Land Disposal Restrictions (LDR) form to be sent along with the Uniform Hazardous Waste Manifest to the disposal facility. The LDR (See Attachment 3 example form provided by a disposal facility) is required by 40 CFR 268.7(a) and must have the appropriate fields completed for the waste being transported.
 - 4.1.2.2** The Brio Site Safety and Operations Supervisor (SOS) signs the manifest certification by hand, and obtains the handwritten signature of the initial transporter and date of acceptance on the manifest. The site retains one copy and gives the transporter the remaining copies of the manifest.
 - 4.1.2.3** The Brio Site is required by the State to send a copy of the manifest (signed by both the generator and the transporter) to the State TCEQ. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers, generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the State of Texas.
 - 4.1.2.4** The Brio Site must keep a copy of each signed manifest for three years, or until it receives a signed copy from the disposal facility which ultimately receives the waste. A copy must be kept in the site files for 30 years.
- 4.1.3** When the transporter arrives at the treatment, storage, and disposal facility designated on the manifest, he gives the manifest to a representative of that facility who signs and dates the manifest. The transporter keeps a signed copy of this manifest on file.

BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN

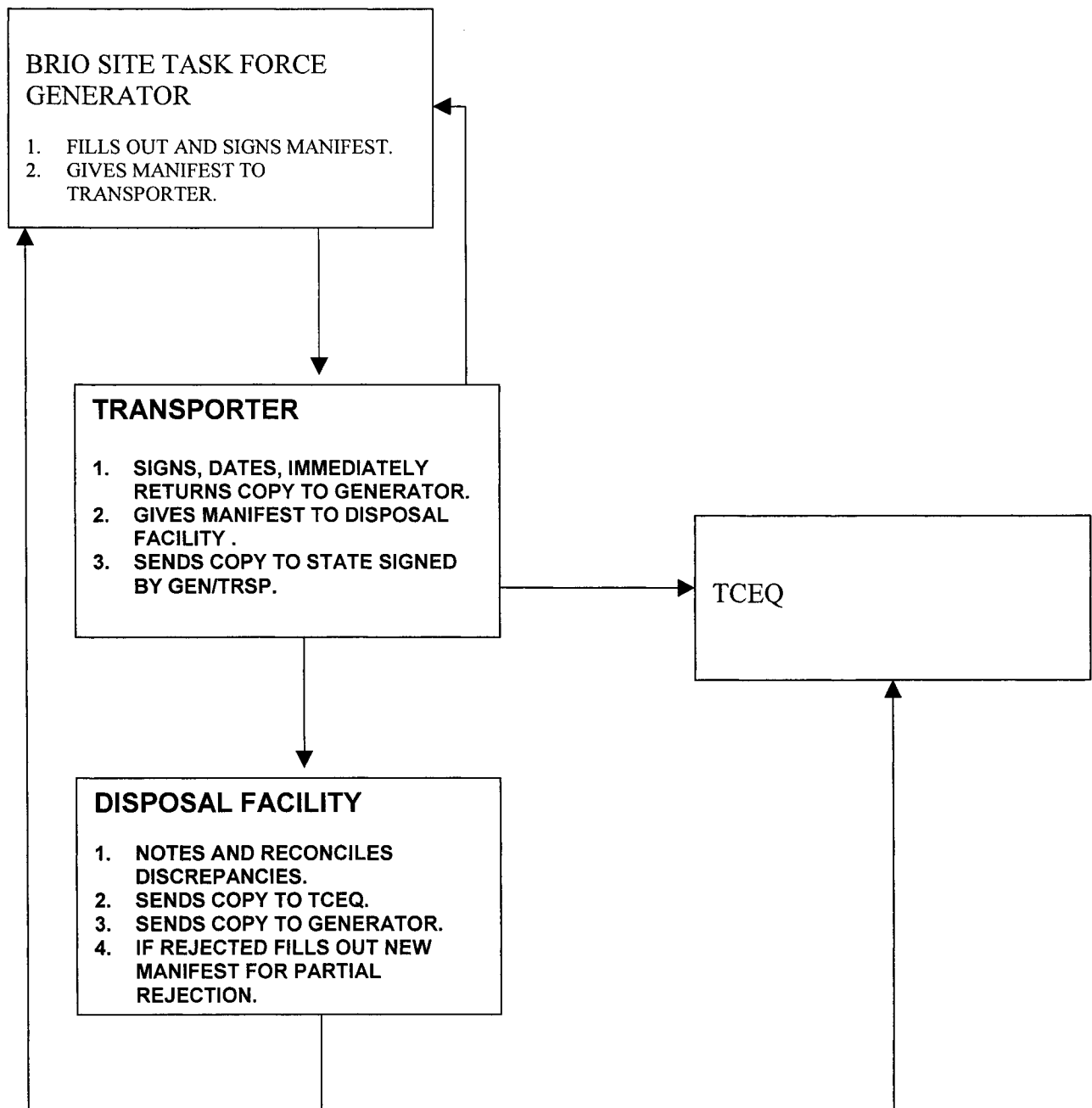
- 4.1.4** Any discrepancies between the waste description on the manifest and the actual waste received by the disposal facility are noted in the "Discrepancy Indication Space" on the manifest.
- 4.1.5** The disposal facility sends a copy of the manifest, signed by their representative, to the generator, thereby closing the loop in the manifest cycle and enabling the generator to verify that the waste has been disposed of properly. The disposal facility also retains a copy of the manifest on file.
- 4.1.6** If the Brio Site has not received a copy back from the disposal facility within thirty (30) days of the shipment, call the facility and request the copy.

If the Brio Site does not receive a copy of the manifest signed by the disposal facility within 45 days of the date that the waste was accepted by the initial transporter, the Brio Site must file an exception report (Section CFR 40, part 262.42).

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

ATTACHMENT 1

MANIFEST ROUTING



BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

ATTACHMENT 2 UNIFORM HAZARDOUS WASTE MANIFEST FORM

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087



SAMPLE
COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved: OMB No. 2050-0039.

| UNIFORM HAZARDOUS WASTE MANIFEST | | 1. Generator's US EPA ID No. <i>TX D 9 8 0 6 2 5 4 5 3 2 0 7 4 1</i> | | Manifest Document No. <i>1 of 1</i> | | 2. Page 1 <i>1 of 1</i> | | Information in the shaded areas is not required by Federal law. | | |
|---|--|--|--|---|-----------|--|--------------------|--|------|--|
| 3. Generator's Name and Mailing Address <i>BRIO SITE TASK FORCE; ATTN: YOUR NAME 2501 DIXIE FARM RD. HOUSTON, TX. 77089</i> | | 4. Generator's Phone (<i>800</i>) <i>392-1664</i> | | 5. Transporter 1 Company Name <i>CLEAN HARBORS ENV. SERVICES</i> | | 6. US EPA ID Number <i>MA D 0 3 9 3 2 2 2 5 0</i> | | 7. Transporter 2 Company Name | | |
| 9. Designated Facility Name and Site Address <i>CLEAN HARBORS DEER PARK LP 2027 BATTLEGROUND RD. DEER PARK, TX. 77536</i> | | 10. US EPA ID Number <i>TX D 0 5 5 1 4 1 3 7 8</i> | | A. State Manifest Document Number <i>02520441</i> | | B. State Generator's ID <i>36844</i> | | C. State Transporters ID <i>41315</i> | | |
| | | | | D. Transporters Phone <i>(781) 849-1800</i> | | E. State Transporter's ID | | F. Transporters Phone | | |
| | | | | G. State Facility's ID <i>50089</i> | | H. Facility's Phone <i>281-930-2300</i> | | | | |
| GENERATOR | 11A. HM | 11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group) | | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt/Vol | 15. Waste No. | | |
| | | a. <i>RQ. HAZARDOUS WASTE FLAMMABLE LIQUID, N.O.S. 3, U.N. 1993, PG-II, (VINYL CHLORIDE)</i> | | <i>1</i> | <i>TT</i> | <i>EST.</i> | <i>P</i> | <i>0001219H</i> | | |
| | | b. | | | | | | | | |
| | | c. | | | | | | | | |
| | | d. | | | | | | | | |
| J. Additional Descriptions for Materials Listed Above <i>EPA WASTE CODE D001, D018, D023, D029, D039, D040, D049 HO 78231-125 (CONPL)</i> | | | | K. Handling Codes for Wastes Listed Above <i>MO-41</i> | | | | | | |
| 15. Special Handling Instructions and Additional Information <i>IN CASE OF EMERGENCY CONTACT: BRIO 281-481-1261 CLEAN HARBORS 781-849-1800</i> | | | | | | | | | | |
| 16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford. | | | | | | | | | | |
| Printed/Typed Name | | | | Signature | | | | Month Day Year | | |
| TRANSPORTER | 17. Transporter 1 Acknowledgement of Receipt of Materials | | | | | | | | | |
| | Printed/Typed Name | | | | Signature | | | | Date | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 18. Transporter 2 Acknowledgement of Receipt of Materials | | | | | | | | | | |
| Printed/Typed Name | | | | Signature | | | | Date | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| FACILITY | 19. Discrepancy Indication Space | | | | | | | | | |
| | 20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. | | | | | | | | | |
| | Printed/Typed Name | | | | Signature | | | | Date | |
| | | | | | | | | | | |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**ATTACHMENT 3
LAND DISPOSAL RESTRICTIONS FORM**

LDR NOTIFICATION PACKAGE

General Instructions

The enclosed Land Disposal Restrictions (LDR) Notification Form has been designed to streamline the LDR notification & certification requirements while complying with 40 CFR §268.7. For restricted waste not meeting applicable treatment standards of 40 CFR Part 268 Subpart D, the proper completion of the enclosed one page notification form will satisfy the LDR notification & certification requirements. This form will also accommodate contaminated soil that meets the alternative treatment standards of §268.49. However, if your waste already meets treatment standards (other than contaminated soil), please contact your SK representative for the form "Notification & Certification: Restricted Waste Meeting Treatment Standards".

Please type or print in ink & **retain a copy of this entire package for your files.** Note: The LDR Notification Package is also available in an electronic format utilizing Windows 95, Word 7.0 template fill-in feature. Please contact your SK Representative for a diskette.

LDR Notification Form

Generator Name & Manifest No.: Enter the Generator Company's Name & Manifest No. applicable to the LDR Notification Form.

A. General Waste Notification

SK Profile No.: Enter the SK Material Profile No. assigned to the waste (one per Form Line No. only). Note: Form Line No. refers to the LDR Notification Form, not the hazardous waste manifest line item number.

EPA Waste Codes & LDR Subcategories (if any): Per SK Profile No., list all EPA waste codes & LDR subcategories (if any) applicable to the waste. Use Attachment 1 if there are space constraints due to numerous waste codes. The below subcategory legend is offered as an option to writing the words. **Note: If you choose to use the subcategory legend, please retain a copy of these instructions for your files.**

The following waste codes have subcategories: D001 ICW, D001 LQ, D003 EX, D003 UO, D003 RC, D003 RS, D003 OR, D003 WR, D006 CB, D008 LB, D009 LM NRR, D009 LM-RR, D009 HM (organic), D009 HM (inorganic), K006 AN, K006 HY, K069 CS, K069 NCS, K071 RR, K071 NRR, K106 LM-RR, K106 LM-NRR, K106 HM, P065 LM-RR, P065 LM-IR, P065-NIRR, P065 HM-IRR, P092-NIRR, P092 LM-RR, P092 LM-IR, P092 HM-IRR, U151 LM-RR, U151 LM-NRR, U151 HM.

SUBCATEGORY LEGEND

| | | |
|--------------------------------------|---|--|
| AN = Anhydrous | IR = INCIN Residues | NRR = Non-RMERC Residues |
| CB = Cadmium Battery | IRR = INCIN or RMERC Residues | OR = Other Reactives [40 §CFR 261.23(a)(1)] |
| CS = Calcium Sulfate | LB = Lead Acid Battery | RC = Reactive Cyanide [40 §CFR 261.23(a)(5)] |
| EX = Explosive * | LM = Low Mercury (<260 mg/kg) | RR = RMERC Residues |
| HM = High Mercury (>260 mg/kg) | LQ = Liquid ≥ 10% TOC | RS = Reactive Sulfide [40 §CFR 261.23(a)(5)] |
| HY = Hydrated | NCS = Non-Calcium Sulfate | TOC = Total Organic Carbon |
| ICW = Ignitable Characteristic Waste | NIRR = Non-Incineration or non-RMERC Residues | UO = Unexploded Ordnance |
| | | WR = Water Reactive |

* Subcategory based on 40 CFR §261.23(a)(6), (7), & (8)

NWW or WW: Check either non-wastewater or wastewater, if the waste is not subject to Sections B or D. Note: Wastewater means < 1% TOC and < 1% Total Suspended Solids. Non-wastewater means not a wastewater.

Waste Constituent Notification: Check the "None" box if the waste is not subject to waste constituent notification. Note: For labpacks subject to the alternative treatment standards of 40 CFR §268.42(c), i.e., incineration, waste constituent notification does not apply. For waste subject to waste constituent notification, list the Legend Constituent # or use Attachment 2 if additional space is needed. EPA Hazardous Wastes subject to waste constituent notification are as follows: D001 ICW (ignitable characteristic waste), D002, D003 EX (explosive), D003 OR (other reactives), D003 WR (water reactive), D004-D043, F001-F005, & F039.

Waste constituent notification identifies "constituents of concern" in F001-F005 & F039 wastes. For the characteristic codes listed above, the notification identifies "underlying hazardous constituents", i.e., any constituent listed in 40 CFR §268.48, Universal Treatment Standards (UTS), except fluoride, selenium, sulfides, vanadium & zinc which can reasonably be expected to be present at the point of generation of the hazardous waste at a concentration above the constituent-specific UTS level.

Instructions Continue On Next Page

LDR NOTIFICATION INSTRUCTIONS (continued):

B. Hazardous Debris Notification

Hazardous Debris Notification: In addition to the completion of Section A (except NWW or WW), check all the boxes in Section B that apply & indicate the applicable Form Line No. from Section A if the waste will be treated with the alternative treatment technologies & meets the following definition: *hazardous debris* means debris that contains a hazardous waste listed in Subpart D of 40 CFR Part 261 or exhibits a *characteristic* of hazardous waste identified in Subpart C of 40 CFR Part 261; *debris* means solid material exceeding a 60 mm particle size that is intended for disposal & that is: a manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: any material for which a specific treatment standard is provided in Subpart D, Part 268, namely lead acid batteries, cadmium batteries, & radioactive lead solids; process residuals such as smelter slag & residues from the treatment of waste, wastewater, sludges, or air emission residues; & intact containers of hazardous waste that are not ruptured & that retain at least 75% of their original volume. A mixture of debris that has not been treated to the standards provided by §268.45 & other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection.

The *alternative* treatment standards for hazardous debris (40 CFR §268.45) allow the use of specific technologies from one or more of the following categories: extraction, destruction, or immobilization. These alternatives were developed due to the impracticality of sampling debris > 60mm particle size (~2.5 inches); therefore, meeting concentration-based treatment standards is also impractical.

C. Contaminated Soil Notification & Certification

Contaminated Soil Notification: In addition to the completion of Section A, check the box provided in Section C & indicate the applicable Form Line No. from Section A if the waste meets the following definition & will be treated in accordance with or complies with the alternative soil treatment standards: unconsolidated earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Soil Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes & is made up primarily of soil by volume based on visual inspection.

The *alternative* treatment standard for listed/characteristic contaminated soils is a reduction in concentration of each hazardous constituent subject to treatment by 90% or to 10 times Universal Treatment Standards (UTS), i.e., "90% capped @ 10x UTS". Constituents subject to treatment are any constituents listed in 40 CFR §268.48, UTS Table (except fluoride, selenium, sulfides, vanadium & zinc) that are present at concentrations >10 times UTS. If these standards are used, the soil remains subject to RCRA Subtitle C.

D. Lab Pack (Incineration) Notification & Certification

Lab Pack (Incineration) Notification: In addition to the completion of Section A (except NWW, WW & Waste Constituent Notification), check the box provided in Section D & indicate the applicable Form Line No. from Section A if the lab pack meets the following criteria: 1) Contains only wastes that have not been excluded under Appendix IV to 40 CFR Part 268. These excluded wastes are as follows: D009, F019, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, U151; 2) Meets DOTs lab pack definition under 49 CFR 173.12; 3) Is sent to a combustion facility in compliance with the alternative treatment standards for lab packs under 40 CFR §268.42(c). EPA's alternative treatment standard for these wastes is CMBST (combustion). This negates the requirements to monitor for, or comply with, the universal treatment standards for underlying hazardous constituents / constituents of concern.

Note: If any of the excluded wastes listed above are packaged as a lab pack, they will be subject to the applicable LDR treatment standard as a NWW or WW. Some of these wastes have a recovery (technology-based) treatment standard, while others have only metal (concentration based) standards that can likely be met by the landfills.

E. Extensions & Variances

Extensions & Variances: In addition to the completion of Section A, check the box provided in Section E & indicate the applicable Form Line No. from Section A if the waste is subject to a deadline extension or variance. Describe in the space provided in Section E any extension or variance that applies to the waste & include applicable dates.

LDR Attachment 1: EPA Waste Codes

Attachment 1: This form is only used if additional space is required to enter EPA waste codes in Section A of the LDR Notification form. If Attachment 1 is used, enter the Form Line No. from Section A of the notification form next to the applicable waste codes.

LDR Attachment 2: Waste Constituent Notification

Attachment 2: This form is only used if additional space is required to enter constituents in Section A of the LDR Notification form. If Attachment 2 is used, enter the Form Line No. from Section A of the notification form next to the applicable constituents.

LDR NOTIFICATION FORM

| Generator Name _____ | | | Manifest No. _____ | | |
|---|----------------|---|---------------------------------------|--------------------------|--|
| Pursuant to 40 CFR §268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268 Land Disposal Restrictions (LDR). | | | | | |
| A. GENERAL WASTE NOTIFICATION | | | | | |
| Form Line No. | SK Profile No. | EPA Waste Codes & LDR Subcategories (if any) <i>List codes or use Attachment 1</i> | NWW | WW | Waste Constituent Notification <i>Check the "None" box or List Legend Constituent # or use Attachment 2</i> |
| 1 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 2 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 3 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 4 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 5 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 6 | | _____ <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | _____ <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| B. HAZARDOUS DEBRIS NOTIFICATION | | | | | |
| <input type="checkbox"/> This hazardous debris, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.45. The waste contains the following contaminants subject to treatment (check all that apply): <input type="checkbox"/> Toxicity characteristic debris <input type="checkbox"/> Debris contaminated with listed waste <input type="checkbox"/> Cyanide reactive debris | | | | | |
| C. CONTAMINATED SOIL NOTIFICATION & CERTIFICATION | | | | | |
| <input type="checkbox"/> This contaminated soil, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.49(c). Complete the following: "I certify under penalty of law that I personally have examined this contaminated soil & it [<input type="checkbox"/> does/ <input type="checkbox"/> does not] contain listed hazardous waste & [<input type="checkbox"/> does / <input type="checkbox"/> does not] exhibit a characteristic of hazardous waste & [<input type="checkbox"/> is subject to / <input type="checkbox"/> complies with] soil treatment standards as provided by §268.49(c) or the universal treatment standards". <i>Note: Constituents subject to treatment are any constituents listed in 40 CFR §268.48 Universal Treatment Standards that are reasonably expected to be present in any given volume of contaminated soil, except fluoride, selenium, sulfides, vanadium & zinc, & are present at concentrations greater than ten times the universal treatment standard.</i> | | | | | |
| D. LAB PACK (INCINERATION) NOTIFICATION & CERTIFICATION | | | | | |
| <input type="checkbox"/> This lab pack, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.42(c). "I certify under penalty of law that I personally have examined & am familiar with the waste & that the lab pack contains only wastes that have not been excluded under Appendix IV to 40 CFR Part 268 & that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR §268.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment". | | | | | |
| E. EXTENSIONS & VARIANCES | | | | | |
| <input type="checkbox"/> This waste, as identified above on Line No(s). _____ is not prohibited from land disposal & is subject to a deadline extension or variance, e.g., treatability variance, case-by-case extension. <i>Describe below any extension or variance that applies to this waste & include applicable dates:</i> | | | | | |
| Generator's Authorized Signature _____ | | | Name & Title (Printed or Typed) _____ | | Date _____ |

LDR ATTACHMENT 1: EPA WASTE CODE LISTING

Note: If this form is necessary for notification purposes, it must be used in conjunction with the Notification form and/or Certification form.

| | | | | | | | |
|---------------------------------|-------------|---------------------|-------------|--------------------|----------|----------|----------|
| Generator Name _____ | | | | Manifest No. _____ | | | |
| Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code |
| "D" Characteristic Codes | | | | | | | |
| D001 ICW | D004 | D009 HM (Organic) | D017 | D026 | D035 | | |
| D001 LQ (≥10% TOC) | D005 | D009 HM (Inorganic) | D018 | D027 | D036 | | |
| D002 | D006 | D010 | D019 | D028 | D037 | | |
| D0003 EX | D006 CB | D011 | D020 | D029 | D038 | | |
| D0003 OR | D007 | D012 | D021 | D030 | D039 | | |
| D0003 RC | D008 | D013 | D022 | D031 | D040 | | |
| D0003 RS | D008 LB | D014 | D023 | D032 | D041 | | |
| D0003 UO | D009 LM-NRR | D015 | D024 | D033 | D042 | | |
| D0003 WR | D009 LM-RR | D016 | D025 | D034 | D043 | | |
| "F" Listed Codes | | | | | | | |
| F001 | F006 | F011 | F022 | F027 | F037 | | |
| F002 | F007 | F012 | F023 | F028 | F038 | | |
| F003 | F008 | F019 | F024 | F032 | F039 | | |
| F004 | F009 | F020 | F025 | F034 | | | |
| F005 | F010 | F021 | F026 | F035 | | | |
| "K" Listed Codes | | | | | | | |
| K001 | K022 | K043 | K086 | K109 | K144 | | |
| K002 | K023 | K044 | K087 | K110 | K145 | | |
| K003 | K024 | K045 | K088 | K111 | K147 | | |
| K004 | K025 | K046 | K093 | K112 | K148 | | |
| K005 | K026 | K047 | K094 | K113 | K149 | | |
| K006 AN | K027 | K048 | K095 | K114 | K150 | | |
| K006 HY | K028 | K049 | K096 | K115 | K151 | | |
| K007 | K029 | K050 | K097 | K116 | K156 | | |
| K008 | K030 | K051 | K098 | K117 | K157 | | |
| K009 | K031 | K052 | K099 | K118 | K158 | | |
| K010 | K032 | K060 | K100 | K123 | K159 | | |
| K011 | K033 | K061 | K101 | K124 | K161 | | |
| K013 | K034 | K062 | K102 | K125 | K169 | | |
| K014 | K035 | K069 CS | K103 | K126 | K170 | | |
| K015 | K036 | K069 NCS | K104 | K131 | K171 | | |
| K016 | K037 | K071 RR | K105 | K132 | K172 | | |
| K017 | K038 | K071 NRR | K106 LM-RR | K136 | | | |
| K018 | K039 | K073 | K106 LM-NRR | K140 | | | |
| K019 | K040 | K083 | K106 HM | K141 | | | |
| K020 | K041 | K084 | K107 | K142 | | | |
| K021 | K042 | K085 | K108 | K143 | | | |
| "P" Listed Codes | | | | | | | |
| P001 | P013 | P027 | P041 | P056 | P066 | | |
| P002 | P014 | P028 | P042 | P057 | P067 | | |
| P003 | P015 | P029 | P043 | P058 | P068 | | |
| P004 | P016 | P030 | P044 | P059 | P069 | | |
| P005 | P017 | P031 | P045 | P060 | P070 | | |
| P006 | P018 | P033 | P046 | P062 | P071 | | |
| P007 | P020 | P034 | P047 | P063 | P072 | | |
| P008 | P021 | P036 | P048 | P064 | P073 | | |
| P009 | P122 | P037 | P049 | P065 NIRR | | | |
| P010 | P023 | P038 | P050 | P065 LM-IR | | | |
| P011 | P024 | P039 | P051 | P065 LM-RR | | | |
| P012 | P026 | P040 | P054 | P065 HM-IRR | | | |

Note: The Line #'s are from the Notification Form, not the hazardous waste manifest.

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LDR ATTACHMENT 1: EPA WASTE CODE LISTING - PAGE 2
MANIFEST NO.:

| Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code | Line #'s | EPA Code |
|---------------------------------|-------------|----------|-------------|----------|--------------------|----------|----------|----------|----------|----------|----------|
| "P" Characteristic Codes | | | | | | | | | | | |
| P074 | P089 | P099 | P112 | P127 | P198 | | | | | | |
| P075 | P092 NIRR | P101 | P113 | P128 | P199 | | | | | | |
| P076 | P092 LM-IR | P102 | P114 | P185 | P201 | | | | | | |
| P077 | P092 LM-RR | P103 | P115 | P188 | P202 | | | | | | |
| P078 | P092 HM-IRR | P104 | P116 | P189 | P203 | | | | | | |
| P081 | P093 | P105 | P118 | P190 | P204 | | | | | | |
| P082 | P094 | P106 | P119 | P191 | P205 | | | | | | |
| P084 | P095 | P108 | P120 | P192 | | | | | | | |
| P085 | P096 | P109 | P121 | P194 | | | | | | | |
| P087 | P097 | P110 | P122 | P196 | | | | | | | |
| P088 | P098 | P111 | P123 | P197 | | | | | | | |
| "U" Listed Codes | | | | | | | | | | | |
| U001 | U045 | U089 | U133 | U174 | U221 | | | | | | |
| U002 | U046 | U090 | U134 | U176 | U222 | | | | | | |
| U003 | U047 | U091 | U135 | U177 | U223 | | | | | | |
| U004 | U048 | U092 | U136 | U178 | U225 | | | | | | |
| U005 | U049 | U093 | U137 | U179 | U226 | | | | | | |
| U006 | U050 | U094 | U138 | U180 | U227 | | | | | | |
| U007 | U051 | U095 | U140 | U181 | U228 | | | | | | |
| U008 | U052 | U096 | U141 | U182 | U234 | | | | | | |
| U009 | U053 | U097 | U142 | U183 | U235 | | | | | | |
| U010 | U055 | U098 | U143 | U184 | U236 | | | | | | |
| U011 | U056 | U099 | U144 | U185 | U237 | | | | | | |
| U012 | U057 | U101 | U145 | U186 | U238 | | | | | | |
| U014 | U058 | U102 | U146 | U187 | U239 | | | | | | |
| U015 | U059 | U103 | U147 | U188 | U240 (2,4-D) | | | | | | |
| U016 | U060 | U105 | U148 | U189 | U240 (2,4-D) Salts | | | | | | |
| U017 | U061 | U106 | U149 | U190 | U243 | | | | | | |
| U018 | U062 | U107 | U150 | U191 | U244 | | | | | | |
| U019 | U063 | U108 | U151 LM-NRR | U192 | U246 | | | | | | |
| U020 | U064 | U109 | U151 LM-RR | U193 | U247 | | | | | | |
| U021 | U066 | U110 | U151 HM | U194 | U248 | | | | | | |
| U022 | U067 | U111 | U152 | U196 | U249 | | | | | | |
| U023 | U068 | U112 | U153 | U197 | U271 | | | | | | |
| U024 | U069 | U113 | U154 | U200 | U278 | | | | | | |
| U025 | U070 | U114 | U155 | U201 | U279 | | | | | | |
| U026 | U071 | U115 | U156 | U202 | U280 | | | | | | |
| U027 | U072 | U116 | U157 | U203 | U328 | | | | | | |
| U028 | U073 | U117 | U158 | U204 | U353 | | | | | | |
| U029 | U074 | U118 | U159 | U205 | U359 | | | | | | |
| U030 | U075 | U119 | U160 | U206 | U364 | | | | | | |
| U031 | U076 | U120 | U161 | U207 | U367 | | | | | | |
| U032 | U077 | U121 | U162 | U208 | U372 | | | | | | |
| U033 | U078 | U122 | U163 | U209 | U373 | | | | | | |
| U034 | U079 | U123 | U164 | U210 | U387 | | | | | | |
| U035 | U080 | U124 | U165 | U211 | U389 | | | | | | |
| U036 | U081 | U125 | U166 | U213 | U394 | | | | | | |
| U037 | U082 | U126 | U167 | U214 | U395 | | | | | | |
| U038 | U083 | U127 | U168 | U215 | U404 | | | | | | |
| U039 | U084 | U128 | U169 | U216 | U408 | | | | | | |
| U041 | U085 | U129 | U170 | U217 | U409 | | | | | | |
| U042 | U086 | U130 | U171 | U218 | U410 | | | | | | |
| U043 | U087 | U131 | U172 | U219 | U411 | | | | | | |
| U044 | U088 | U132 | U173 | U220 | | | | | | | |

Note: The Line #'s are from the Notification Form, not the hazardous waste manifest.

DWALKER.LDR 1.02.03.99

LDR 5/7

LDR ATTACHMENT 2: WASTE CONSTITUENT NOTIFICATION

Note: If this form is necessary for notification purposes, it must be used in conjunction with the Notification form and/or Certification form.

| Generator Name _____ | | | | Manifest No. _____ | | | | |
|--|-------------------------------|----------|----------|--|----------|----------|--|----------|
| LDR Inorganic Constituents (40 CFR §268.48) | | | | | | | | |
| Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # |
| _____ | Antimony | 246 | _____ | Cyanides (Total) | 252 | _____ | Nickel | 258 |
| _____ | Arsenic | 247 | _____ | Cyanides (Amenable) | 253 | _____ | Selenium ¹ | 259 |
| _____ | Barium | 248 | _____ | Fluoride ¹ | 254 | _____ | Silver | 260 |
| _____ | Beryllium | 249 | _____ | Lead | 255 | _____ | Sulfide ¹ | 261 |
| _____ | Cadmium | 250 | _____ | Mercury - NWW from Retort | 256 | _____ | Thallium | 262 |
| _____ | Chromium (Total) | 251 | _____ | Mercury - All Others | 257 | _____ | Vanadium ¹ | 263 |
| LDR Inorganic Constituents (40 CFR §268.48) | | | | | | | | |
| Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # |
| _____ | Acenaphthylene | 49 | _____ | 2-sec-Butyl-4,6- dinitrophenol (Dinoseb) | 79 | _____ | o,p'-DDT | 112 |
| _____ | Acenaphthene | 50 | _____ | Carbaryl * | 270 | _____ | p,p'-DDT | 113 |
| _____ | Acetone | 51 | _____ | Carbenzadim * | 271 | _____ | Dibenz(a,h)anthracene | 114 |
| _____ | Acetonitrile | 52 | _____ | Carbofuran * | 272 | _____ | Dibenz(a,e)pyrene | 115 |
| _____ | Acetophenone | 53 | _____ | Carbofuran phenol * | 273 | _____ | 1,2-Dibromo-3-chloropropane | 104 |
| _____ | 2-Acetylaminofluorene | 54 | _____ | Carbon disulfide | 80 | _____ | 1,2-Dibromoethane (Ethylene dibromide) | 105 |
| _____ | Acrolein | 55 | _____ | Carbon tetrachloride | 81 | _____ | Dibromomethane | 106 |
| _____ | Acrylamide * | 56 | _____ | Carbosulfan * | 274 | _____ | m-Dichlorobenzene | 116 |
| _____ | Acrylonitrile | 57 | _____ | Chlordane (alpha & gamma isomers) | 82 | _____ | o-Dichlorobenzene | 117 |
| _____ | Aldicarb sulfone * | 265 | _____ | p-Chloroaniline | 83 | _____ | p-Dichlorobenzene | 118 |
| _____ | Aldrin | 58 | _____ | Chlorobenzene | 84 | _____ | Dichlorodifluoromethane | 119 |
| _____ | 4-Aminobiphenyl | 59 | _____ | Chlorobenzilate | 85 | _____ | 1,1-Dichloroethane | 120 |
| _____ | Aniline | 60 | _____ | 2-Chloro-1,3-butadiene | 86 | _____ | 1,2-Dichloroethane | 121 |
| _____ | Anthracene | 61 | _____ | Chlorodibromomethane | 87 | _____ | 1,1-Dichloroethylene | 122 |
| _____ | Aramite | 62 | _____ | Chloroethane | 88 | _____ | trans-1,2-Dichloroethylene | 123 |
| _____ | Barban * | 266 | _____ | bis(2- Chloroethoxy) methane | 89 | _____ | 2,4-Dichlorophenol | 124 |
| _____ | Bendiocarb * | 267 | _____ | bis(2-Chloroethyl)ether | 90 | _____ | 2,6-Dichlorophenol | 125 |
| _____ | Benomyl * | 268 | _____ | 2-Chloroethyl vinyl ether * | 94 | _____ | 2,4-D (2,4-Dichlorophenoxy-acetic acid | 107 |
| _____ | Benzo(a)anthracene | 68 | _____ | Chloroform | 91 | _____ | 1,2-Dichloropropane | 126 |
| _____ | Benzal chloride * | 69 | _____ | bis(2-Chloroisopropyl)ether | 92 | _____ | cis-1,3-Dichloropropylene | 127 |
| _____ | Benzene | 67 | _____ | p-Chloro-m-cresol | 93 | _____ | trans-1,3-Dichloropropylene | 128 |
| _____ | Benzo(b)fluoranthene | 70 | _____ | Chloromethane (Methyl chloride) | 95 | _____ | Dieldrin | 129 |
| _____ | Benzo(k) fluoranthene | 71 | _____ | 2-Chloronaphthalene | 96 | _____ | Diethylphthalate | 130 |
| _____ | Benzo(g,h,i) fluoranthene | 72 | _____ | 2-Chlorophenol | 97 | _____ | p-Dimethylaminoazobenzene * | 140 |
| _____ | Benzo(a)pyrene | 73 | _____ | 3-Chloropropylene | 98 | _____ | 2,4-Dimethyl phenol | 131 |
| _____ | alpha-BHC | 63 | _____ | Chrysene | 99 | _____ | Dimethyl phthalate | 132 |
| _____ | beta-BHC | 64 | _____ | o-Cresol | 100 | _____ | Di-n-butyl phthalate | 133 |
| _____ | delta-BHC | 65 | _____ | m-Cresol | 101 | _____ | 1,4-Dinitrobenzene | 134 |
| _____ | gamma-BHC | 66 | _____ | p-Cresol | 102 | _____ | 4,6-Dinitro-o-cresol | 135 |
| _____ | Bromodichloromethane | 74 | _____ | m-Cumenyl methylcarbamate * | 275 | _____ | 2,4-Dinitrophenol | 136 |
| _____ | Bromomethane (methyl bromide) | 75 | _____ | Cyclohexanone | 103 | _____ | 2,4-Dinitrotoluene | 137 |
| _____ | 4-Bromophenyl phenyl ether | 76 | _____ | o,p'-DDD | 108 | _____ | 2,6-Dinitrotoluene | 138 |
| _____ | n-Butyl alcohol | 77 | _____ | p,p'-DDD | 109 | _____ | Di-n-octyl phthalate | 139 |
| _____ | Butyl benzyl phthalate | 78 | _____ | o,p'-DDE | 110 | _____ | Di-n-propylnitrosamine | 141 |
| _____ | Butylate * | 269 | _____ | p,p'-DDE | 111 | _____ | 1,4-Dioxane | 142 |

¹ Regulated under F039 only; not a UHC

* Constituent not regulated under F039

Note: Line #'s are from the Notification Form, not the hazardous waste manifest.

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LDR ATTACHMENT 2: WASTE CONSTITUENT NOTIFICATION - PAGE 2 MANIFEST NO.:

| Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # | Line #'s | Constituent | Legend # |
|----------|---|----------|----------|--|----------|----------|---|----------|
| | Diphenylamine | 143 | | Methyl ethyl ketone | 184 | | Physostigmine salicylate ** | 287 |
| | Diphenylnitrosamine | 144 | | Methyl isobutyl ketone | 185 | | Promecarb * | 288 |
| | 1,2-Diphenylhydrazine | 145 | | Methyl methacrylate | 186 | | Pronamide * | 218 |
| | Disulfoton | 146 | | Methyl methanesulfonate | 187 | | Propham * | 289 |
| | Dithiocarbamates (total) * | 276 | | Methyl parathion | 188 | | Propoxur * | 290 |
| | Endosulfan I | 147 | | 3-Methylcholanthrene | 181 | | Prosulfocarb * | 291 |
| | Endosulfan II | 148 | | 4,4-Methylene bis (2-chloro-aniline) | 182 | | Pyrene | 219 |
| | Endosulfan sulfate | 149 | | Methylene chloride | 183 | | Pyridine | 220 |
| | Endrin | 150 | | Metolcarb * | 281 | | Safrole | 221 |
| | Endrin aldehyde | 151 | | Mexacarbate * | 282 | | Silvex (2,4,5-TP) | 222 |
| | EPTC | 277 | | Molinate * | 283 | | TCDDs (All Tetrachloro-dibenzo-p-dioxins) | 225 |
| | 2-Ethoxyethanol ** | 32 | | Naphthalene | 189 | | TCDFs (All Tetrachloro-dibenzofurans) | 226 |
| | Ethyl acetate | 152 | | 2-Naphthylamine | 190 | | 1,2,4,5-Tetrachlorobenzene | 224 |
| | Ethyl benzene | 154 | | o-Nitroaniline * | 191 | | 1,1,1,2-Tetrachloroethane | 227 |
| | Ethyl cyanide | 153 | | p-Nitroaniline | 192 | | 1,1,2,2-Tetrachloroethane | 228 |
| | Ethyl ether | 155 | | Nitrobenzene | 193 | | Tetrachloroethylene | 229 |
| | Ethyl methacrylate | 157 | | 5-Nitro-o-toluidine | 194 | | 2,3,4,6-Tetrachlorophenol | 230 |
| | Ethylene oxide | 158 | | o-Nitrophenol * | 195 | | Thiodicarb * | 292 |
| | bis(2-Ethylhexyl)phthalate | 156 | | p-Nitrophenol | 196 | | Thiophanate-methyl * | 293 |
| | Famphur | 159 | | 2-Nitropropane ** | 33 | | Toluene | 231 |
| | Fluoranthene | 160 | | N-Nitrosodiethylamine | 197 | | Toxaphene | 232 |
| | Fluorene | 161 | | N-Nitrosodimethylamine | 198 | | Triallate * | 294 |
| | Formetanate hydrochloride * | 278 | | N-Nitroso-di-n-butylamine | 199 | | Tribromomethane (Bromoform) | 233 |
| | Heptachlor | 162 | | N-Nitrosomethylethylamine | 200 | | 2,4,6-Tribromophenol | 295 |
| | Heptachlor epoxide | 163 | | N-Nitrosomorpholine | 201 | | 1,2,4-Trichlorobenzene | 234 |
| | Hexachlorobenzene | 164 | | N-Nitrosopiperidine | 202 | | 1,1,1-Trichloroethane | 235 |
| | Hexachlorobutadiene | 165 | | N-Nitrosopyrrolidine | 203 | | 1,1,2-Trichloroethane | 236 |
| | Hexachlorocyclopentadiene | 166 | | Oxamyl * | 284 | | Trichloroethylene | 237 |
| | Hexachloroethane | 169 | | Parathion | 204 | | Trichloromono-fluoromethane | 238 |
| | Hexachloropropylene | 170 | | Total PCB's | 205 | | 2,4,5-Trichlorophenol | 239 |
| | HxCDDs (All Hexachloro-dibenzo-p-dioxins) | 167 | | Pebulate * | 285 | | 2,4,6-Trichlorophenol | 240 |
| | HxCDFs (All Hexachloro-dibenzofurans) | 168 | | Pentachlorobenzene | 206 | | 2,4,5-T (2,4,5-Trichloro-phenoxacetic acid) | 223 |
| | Indeno (1,2,3-c,d) pyrene | 171 | | PeCDDs (All Pentachloro-dibenzo-p-dioxins) | 207 | | 1,2,3-Trichloropropane | 241 |
| | Iodomethane | 172 | | PeCDFs (All Pentachloro-dibenzofurans) | 208 | | 1,1,2-Trichloro-1,2,2-trifluoroethane | 242 |
| | Isobutyl alcohol | 173 | | Pentachloroethane * | 209 | | Triethylamine * | 296 |
| | Isodrin | 174 | | Pentachloronitrobenzene | 210 | | tris-(2,3-Dibromopropyl) | 243 |
| | Isosafrole | 175 | | Pentachlorophenol | 211 | | Vermolate * | 297 |
| | Kepone | 176 | | Phenacetin | 212 | | Vinyl chloride | 244 |
| | Methacrylonitrile | 177 | | Phenanthrene | 213 | | Xylenes- mixed isomers | 245 |
| | Methanol | 178 | | Phenol | 214 | | | |
| | Methapyrilene | 179 | | Phorate | 215 | | | |
| | Methiocarb * | 279 | | Phthalic acid * | 216 | | | |
| | Methomyl * | 280 | | Phthalic anhydride | 217 | | | |
| | Methoxychlor | 180 | | Physostigmine * | 286 | | | |

* Constituent not regulated under F039

**F005 wastes containing no other F001-F005 solvents

DWALKER.LDR 2.02.01.99

Note: Line #'s are from the Notification Form, not the hazardous waste manifest.

LDR 7/7



TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
Registration & Reporting (MC-129)
P.O. Box 13087
Austin, Texas 78711-3087
(512)239-6413

REPORT STATUS

- ☐ Original Summary
☐ Revised Summary
☐ Supplemental to Summary

TNRCC WASTE SHIPMENT SUMMARY

(1-5) Generator's TNRCC
Solid Waste Registration (SWR) Number

S 1
(6 - 7)

REPORT FOR:

Month Year

Generator's EPA ID

This form is used by
☐ unregistered Texas generators when
shipping Hazardous and/or Class 1
waste and/ or
☐ out-of-state domestic generators
shipping Hazardous waste through
Texas to a foreign country.

This form is due on the 25th of the
month following the month of the
reporting period. For example, the
report for shipments made in May is
due on the 25th of June.

BOXES Indicate the Location of →
Information on the Manifest

Non-industrial Waste Shipments:
Report only Hazardous waste shipped.

NOTICE

If you generate 220 lbs. or less of
hazardous waste per month and 2.2 lbs.
or less of acutely hazardous waste per
month, and generate less than 220 lbs.
of Industrial Class 1 Waste per month
you do not have to complete this report.

(8) Generator's Name: (32)

Site Address: Street City State Zip

Mailing Address: Street/P.O. Box City State Zip

| STATE MANIFEST DOCUMENT NUMBER <u>BOX A</u> | | | | | | | | STATE FACILITY'S ID (RECEIVER) <u>BOX G</u> | | | | | | | | US EPA ID (RECEIVER) If no EPA ID print the Designated Facility Name <u>BOX I</u> | | | | | | | | | | | | WASTE NO. (TEXAS WASTE CODE) <u>BOX I</u> | | | | | | | |
|---|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|--|--|--|--|
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| EPA HAZARDOUS WASTE NUMBER(S) Required for Hazardous Waste Only, Non-Hazardous leave blank Four character code starting with D, F, K, P, or, U (i.e., D001) | | | | | | | | | | | | | | | | QUANTITY Decimals must be in their own boxes <u>BOX 13</u> | | | | | | | | | | U O M | HANDLING (SYSTEM TYPE) CODE <u>BOX K</u> | | | | DATE SHIPPED MMDDYYYY <u>BOX 16</u> | | | | | | | | | |
|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|----|----|----|----|----|----|----|----|----|-------------|---|----|----|----|---|----|----|----|-----|-----|-----|--|--|--|
| 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Quantity Unit of Measure (UOM) (All wastes must be reported in POUNDS (P), KILOGRAMS (K), OR TONS (T))

I certify under penalty of law that I have personally
examined and am familiar with the information submitted
in this and all attached documents, and that based on my
inquiry of those individuals immediately responsible for
obtaining the information, I believe that the submitted
information is true, accurate and complete.

Prepared by: _____
Print Name

Signature _____

Telephone _____ Date _____

Authorized by: _____
Print Name

Signature _____

Telephone _____ Date _____

ADDITIONAL INFORMATION FOR COMPLETING THE WASTE SHIPMENT SUMMARY

If the receiver is a Texas facility, then use the ID from Box G on the manifest. If the receiver is in another state, use the proper code from this table.

State Facility's ID (Receiver) for Out-of-State Facilities

| | | | | | | | | | |
|-------------------|-------|---------------|-------|---------------|-------|----------------|-------|---------------|-------|
| Alabama | Z0001 | Hawaii | Z0015 | Michigan | Z0026 | North Carolina | Z0037 | Vermont | Z0050 |
| Alaska | Z0002 | Idaho | Z0016 | Minnesota | Z0027 | North Dakota | Z0038 | Virginia | Z0051 |
| Arizona | Z0004 | Illinois | Z0017 | Mississippi | Z0028 | Ohio | Z0039 | Washington | Z0053 |
| Arkansas | Z0005 | Indiana | Z0018 | Missouri | Z0029 | Oklahoma | Z0040 | West Virginia | Z0054 |
| California | Z0006 | Iowa | Z0019 | Montana | Z0030 | Oregon | Z0041 | Wisconsin | Z0055 |
| Colorado | Z0008 | Kansas | Z0020 | Nebraska | Z0031 | Pennsylvania | Z0042 | Wyoming | Z0056 |
| Connecticut | Z0009 | Kentucky | Z0021 | Nevada | Z0032 | Rhode Island | Z0044 | Navajo Nation | Z0057 |
| Delaware | Z0010 | Louisiana | Z0022 | New Hampshire | Z0033 | South Carolina | Z0045 | | |
| Dist. of Columbia | Z0011 | Maine | Z0023 | New Jersey | Z0034 | South Dakota | Z0046 | | |
| Florida | Z0012 | Maryland | Z0024 | New Mexico | Z0035 | Tennessee | Z0047 | | |
| Georgia | Z0013 | Massachusetts | Z0025 | New York | Z0036 | Utah | Z0049 | | |

Texas Waste Code: Begin entering the waste code in column 58.

EPA Hazardous Waste Numbers: These numbers ONLY apply to Hazardous Waste and can be found in 40 Code of Federal Regulations Part 261. If more than four waste codes apply, use the four that best describe the waste. DO NOT use an additional line for EPA codes.

HANDLING (System Type) Codes: The receiver should supply you with the correct Handling Code in Box K on the manifest. Below is the list of Handling Codes and a brief description of each code. For reporting purposes, the system type code selected should be for the final disposition of the waste, even if the waste is stored prior to disposal.

| HANDLING (SYSTEM TYPE) CODES | | FUEL BLENDING | | SLUDGE TREATMENT | |
|--|---|--|---|------------------------|--|
| METALS RECOVERY (FOR REUSE) | | M061 | Fuel blending | M101 | Sludge de-watering |
| M011 | High temperature metals recovery | AQUEOUS INORGANIC TREATMENT | | M102 | Addition of excess lime |
| M012 | Retorting | M071 | Chrome reduction followed by chemical precipitation | M103 | Absorption/adsorption |
| M013 | Secondary smelting | M072 | Cyanide destruction followed by chemical precipitation | M104 | Solvent extraction |
| M014 | Other metals recovery for reuse: e.g., ion exchange, reverse osmosis, acid leaching, etc. | M073 | Cyanide destruction only | STABILIZATION | |
| SOLVENTS RECOVERY | | M074 | Chemical oxidation followed by chemical precipitation | M111 | Chemical fixation using cementitious/pozzolanic |
| M021 | Fractionation/distillation | M075 | Chemical oxidation only | M112 | Other stabilization materials |
| M022 | Thin film evaporation | M076 | Wet air oxidation | OTHER TREATMENT | |
| M023 | Solvent extraction | M077 | Chemical precipitation | M121 | Neutralization only |
| M024 | Other solvent recovery | M078 | Other aqueous inorganic treatment: e.g., ion exchange, reverse osmosis, | M122 | Evaporation only |
| OTHER RECOVERY | | AQUEOUS ORGANIC TREATMENT | | M123 | Settling/clarification only |
| M031 | Acid regeneration | M081 | Biological treatment | M124 | Phase separation (e.g., emulsion breaking, filtration) |
| M032 | Other recovery: e.g., waste oil recovery, non-solvent organic recovery, etc. | M082 | Carbon adsorption | M125 | Other treatment |
| INCINERATION | | M083 | Air/steam Oxidation | DISPOSAL | |
| M041 | Incineration - liquids | M084 | Wet air oxidation | M131 | Land treatment/applications farming |
| M042 | Incineration - sludge | M085 | Other aqueous organic treatment | M132 | Landfill |
| M043 | Incineration - solids | AQUEOUS ORGANIC AND INORGANIC TREATMENT | | M133 | Surface impoundment (to be closed as a Landfill) |
| M044 | Incineration - gases | M091 | Chemical precipitation and biological treatment | M134 | Deepwell/underground injection |
| ENERGY RECOVERY (REUSE AS FUEL) | | M092 | Chemical precipitation and carbon | M135 | Direct discharge to sewer/POTW (no prior treatment) |
| M051 | Energy recovery - liquids | M093 | Wet Air Oxidation | M136 | Direct discharge to surface water under NPDES (no prior treatment) |
| M052 | Energy recovery - sludge | M094 | Aqueous Organic | M137 | Other disposal |
| M053 | Energy recovery - solids | STORAGE | | M141 | Storage |

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**APPENDIX H
COMMUNITY RELATIONS PLAN**

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

**POST-CLOSURE
COMMUNITY RELATIONS PLAN**

**UPDATED
FOR THE**

**BRIO REFINING SUPERFUND SITE
HARRIS COUNTY, TEXAS**

February 2004

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

INTRODUCTION

The goal of this Community Relations Plan (CRP) is to provide residents near the Brio Refining Superfund site and other interested parties timely and accurate information after the Remedial Design/Remedial Action (RD/RA) phase of the project is complete.

This plan outlines the general communications efforts appropriate to the Brio Site, and may be modified as circumstances warrant.

The Brio Site Task Force first developed a Community Relations Plan in 1985. It was subsequently updated in 1989, 1991, 1999, and now again in 2004. The objectives of the plan have been to identify local concerns, provide timely and accurate information, and to maintain communication with community leaders. It has been essential to the BSTF, community members, EPA, and other relevant agencies to maintain an ongoing and meaningful community outreach program.

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

OBJECTIVES OF THE PLAN

1. Maintain open and ongoing communications with all site stakeholders, to provide information about ongoing work at the Brio site, including remedial activities, and to provide mechanisms for those audiences to relate their concerns to the Brio Site Task Force.
2. To share identified concerns with the U. S. Environmental Protection Agency (EPA), monitor shifts or changes in these concerns, and to address them directly through planned activities or written communications.
3. Provide updates through community meetings, the local repository, and Task Force newsletters so the community and other interested parties will have access to timely and accurate information.
4. Maintain the established a telephone hotline.
5. Advise both the Task Force and EPA of any community concerns about planned activities.
6. Assist EPA, as needed, in interfacing with the Community Advisory Group (CAG) or with other community relations activities, as requested.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

SITE HISTORY

This 59-acre site was built in the mid-1950s as a chemical reprocessing facility for materials that were to be re-used in other industries. The facility, through its various owners and operators, was used for reprocessing and manufacturing, not disposal. Some of the materials to be reprocessed at the site were stored in earthen pits. Based on emerging environmental standards, the State of Texas ordered the closure of the pits in the late 1970s. While the then current owners (JOC Oil Aromatics) made some effort to complete the closure of the pits, by the time the site was abandoned by Brio Refining in 1982, certain materials remained in the soils and groundwater at the site that required further environmental remediation. That further effort was managed by the Environmental Protection Agency (EPA) under the Superfund law, beginning with the EPA's proposal to include the site on the National Priorities List (NPL) in 1984.

Under Superfund law, if the site's owner/operator is insolvent, those companies that did business with them must assume liability for the cost of cleanup. This provision can extend to companies that delivered product, like transportation companies, or suppliers of product, and even banks that provide financing. The companies known as the Brio Site Task Force, which paid for and implemented the remedy – under the EPA's oversight – were such companies.

After extensive testing and analysis, the EPA in 1988 called for incineration of all on-site materials exceeding acceptable levels. During 1989 most of the old process equipment used by the refining operations was dismantled and cleared from the site.

However, area residents were concerned about the presence of an incinerator in the community and worked diligently with the Superfund Revitalization Office (SRO) out of the Washington, D.C. EPA office to have the remedy changed. In April of 1994, just prior to start up of the incinerator, the SRO issued a report, calling for additional studies at Brio. Pending resolution of the issues raised by SRO's recommendations, all work on the incineration remedy was suspended.

In August 1994, the EPA formed a Community Advisory Group to formally involve citizens in remediation plans at Brio. The BSTF and EPA met jointly with the Community Advisory Group over many months to discuss potential alternatives and to arrive at consensus on a remedy. Ultimately, all parties agreed upon a containment remedy that would feature an underground barrier wall surrounding the site, a multi-layered cover of the site, and an ongoing groundwater and DNAPL recovery and treatment system. DNAPL, short for dense non-aqueous phase liquids, is a dark oily like substance that is denser than water, so it tends to sink.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

Dismantling of the incinerator and support facilities were completed in November 1994. The BSTF began work on the newly agreed upon remedy in March 1999, after the new remedy was approved by the proper legal entities.

The barrier wall, which was designed to minimize the migration of materials, extends 7,500 feet around the perimeter of the site and is approximately 45 feet deep. The majority of the barrier wall is a slurry wall – a mixture of native and bentonite clays, however, sheet pile was installed along Mud Gully for greater stability. The cover system, which consists of a gas collection layer, a flexible membrane liner, 18-inches of compacted clay and a vegetative cover, was designed to eliminate contact with pit residuals, minimize water infiltration, and capture potential emissions from the site, if present. The BSTF also constructed a water treatment facility that was designed and built to treat the groundwater pumped from within the barrier wall. This water is treated to meet strict Federal standards and is tested before being discharged to Mud Gully.

The Brio Site Task Force will continue ongoing operation and maintenance of the site indefinitely.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

PRIOR COMMUNICATIONS

Community relations activities were undertaken under separate, formal plans by both the U.S. EPA Region 6 and the Brio Site Task Force. Communications began before the Brio site was formally placed on the National Priorities List, and have continued to the present time. These efforts have been supplemented through participation of a number of state and federal agencies. These include the Texas Department of Water Resources, Texas Air Control Board, Texas Water Commission, Texas Commission on Environmental Quality, Texas Department of Health, Centers for Disease Control, Agency for Toxic Substances and Disease Registry, Harris County Pollution Control, and Harris County Health Department.

The basic goals of communications have been, and remain, to fulfill the objectives of sound community relations practice, which include:

- Identify local concerns;
- Provide timely and accurate information;
- Maintain open lines of communications with all interested parties; and
- Involve local citizens in the Superfund process.

Prior communications include regular fact sheets and newsletters, public meetings, small group meetings and workshops, site tours, open houses, telephone contact and briefings for appointed and elected officials. Under agreement with the EPA, the Task Force also paid the rent, utilities, and supplies for the local EPA information office from 1991 to 2001, when the EPA closed the office due to decreasing community concern over the site.

EPA and the Brio Site Task Force are separate entities. The community will receive communications at various times from each of the entities, separately.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

COMMUNITY PROFILE

The Brio Refining, Inc. Superfund site is located in unincorporated Harris County, except for a small portion of the site, which falls under the jurisdiction of the City of Friendswood. There is no local governmental structure, no mayor or city council for the unincorporated portions.

The closest subdivision – which is currently under construction by KB Homes – will be located northwest of the site. Dixie Woods, Dixie Hollow and Woodcreek, lie west of the site just off Dixie Farm Road, approximately one-half mile from the eastern Brio site property lines, and to the northwest, there are several large subdivisions with several thousand residents. The geographic area surrounding the site is informally known as the Southbelt area and is served by the Clear Creek Independent School District and the Pasadena Independent School District. Between the early 1980s and 1997, the Southbend Subdivision shared a common boundary at the northern property line of Brio North. The houses in this subdivision were purchased and subsequently dismantled during 1997 by others.

Friendswood, with a population of 30,500 lies to the west, and the City of Pearland with 41,000 residents is to the northwest. The principal business and economic centers of the area include Ellington Field, NASA and related aerospace interests, and the University of Houston Clear Lake campus. Nearby Memorial Hermann Hospital Southeast serves a wide geographic area, as does San Jacinto College South Campus.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

COMMUNICATION METHODS

Formal communication methods include briefings of community leaders and elected/appointed officials at local, state and federal levels, newsletters, formal and informal meetings with area residents, news releases to the mass media, and updating the information repository established by the U. S. EPA.

Informal inquiries to the Brio Site Task Force from homeowners or other interested parties will be handled on a telephone information line maintained by Toby Stark Public Relations, LLC, the Task Force's public information representative. The information telephone number is: 281/873-0222.

Inquiries to the EPA Region 6 may be made by calling John Meyer, Brio site project manager at 214/665-6742 or 800/533-3508, Toll Free.

Communication from the Brio Site Task Force will continue to focus on current and planned site operations as well as ongoing maintenance activities, addressing specific topics of particular interest to the community.

1. Write and distribute a newsletter updating the community and other interested parties on the operations and maintenance phase of the project. This will be written at the end of 2004, if necessary.
2. Host two meetings and site tours for the Community Advisory Group in 2004, and one meeting/tour in 2005.
3. Host two meetings for the site's emergency responders in 2004, and one meeting in 2005.
4. Provide an informational sign on the site with key contact names and numbers.
5. Update the information repository at the San Jacinto College South library with site documents, newsclips, activity reports and related materials. This activity will take place through 2005, after which the repository will be dismantled and maintained by the EPA in Dallas.
6. A comprehensive fact sheet will be available at the information repository and from key site contacts.

BRIO SITE TASK FORCE
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In addition to communication from the Brio Site Task Force, the EPA will continue to maintain information on the Brio site on its Web site: www.epa.gov/region6/superfund. Click on “Texas” and then “Brio Refining, Inc.”

**BRIO SITE TASK FORCE
MAINTENANCE, OPERATIONS, AND MONITORING PLAN**

STAKEHOLDER CONCERNS

New Residents

As the Southbelt area continues to grow and expand, people considering moving into the area want information assuring them that the site doesn't pose any health concerns.

APPENDIX I

Institutional Control Plan

Brio Refining Superfund Site

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

INSTITUTIONAL CONTROL PLAN

BRIO REFINING SUPERFUND SITE

Purpose

The purpose of this Institutional Control Plan is to provide appropriate institutional controls to reduce the risk to public health and the environment from potential hazards posed by the Brio Refining Superfund Site (the “Brio Site”). These measures are in addition to and are meant to ensure the effectiveness of the response actions that have already been undertaken at the Brio Site.

Site Configuration

The Brio Site is located in southeast Harris County, approximately 1½ miles north of Friendswood, Texas, near the intersection of Beamer Road and F.M. 1959.¹ The Brio Site is located southwest of Beamer Road, which runs northwest to southeast, and is divided by F.M. 1959, which runs southwest to northeast.

Site Ownership

Record title to the property comprising the Brio Site is vested in UMB Bank N.A. f/k/a State Street Bank and Trust Company of Missouri, N.A., as Trustee of the Brio Site Trust, in its fiduciary and not in its individual capacity (the “Trustee” or the “Brio Site Trust”) and Brio Refining, Inc., formerly known as Friendswood Refining Corp., and/or the unknown shareholders of Brio Refining, Inc. (collectively the “Defunct Company”). Ralph Lawrence Lowe, Jr. (“Larry Lowe”) previously owned a portion of the Site, which he conveyed to the Brio Site Trust by deed recorded in the Harris County real property records on September 28, 2005. This Institutional Control Plan for the Brio Site also encompasses restrictions on the site referred to as the Dixie Oil Processors Site (the “DOP Site”), which is owned by Larry Lowe.

Institutional Control Strategy

The institutional control strategy is to restrict the use of the affected properties by recording and monitoring compliance with deed restrictions, where possible, that advise of the chemical hazards which are present at the Site and that identify inappropriate and prohibited uses of the properties. A deed restriction is not a viable option for that portion of the Brio Site owned by the Defunct Company. Accordingly, for that portion of Brio Site, Brio Site Task Force is recording a deed notice instead of a deed restriction.

¹ F.M. 1959 is also known as Dixie Farm Road and was formerly known as Choate Road.

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

Plan Implementation

1. Recordation of Institutional Control Documents. The following institutional control documents have been prepared, executed, and recorded in the real property of Harris County, Texas (collectively, the “Institutional Control Documents”):

a. **Brio Site Deed Restrictions.**

i. The Trustee executed a Grant of Environmental Deed Restrictions and Right of Access in favor of Brio Site Task Force, covering portions of the Brio Site owned by the Brio Site Trust, which was recorded August 30, 2005 in the Harris County real property records under Harris County Clerk’s file number Y730710, for that portion of the Site owned by the Brio Site Trust, a copy of which is attached as Annex 1; and

ii. Larry Lowe executed a Grant of Environmental Deed Restrictions and Right of Access by Ralph Lawrence Lowe, Jr. in favor of the Trustee, covering portions of the Brio Site then owned by Larry Lowe, which was recorded August 30, 2005 under Harris County Clerk’s file number Y730711, a copy of which is attached as Annex 2.

b. **Brio Deed Notice.** The Brio Site Task Force executed a Deed Notice providing information concerning environmental conditions and use limitations affecting the property of the Defunct Company located within the boundaries of the Brio Site, which was recorded August 30, 2005 under Harris County Clerk’s file number Y730708, a copy of which is attached as Annex 3.

c. **DOP Site Deed Restriction.** Larry Lowe executed a Grant of Environmental Deed Restrictions and Right of Access in favor of the Trustee, covering the DOP Site, which was recorded August 30, 2005 under Harris County Clerk’s file number Y730709, a copy of which is attached as Annex 4.

2. Monitoring of Site Security and Effectiveness of Controls.

The Brio Site Trust or its agents will periodically inspect the Brio Site and the DOP Site to assess the condition of the perimeter fencing and the type of activities occurring within the site boundaries to evaluate compliance with the Institutional Control Documents. The perimeter fencing for the Brio Site and that portion of the DOP Site known as “DOP South” will be repaired and replaced by the Brio Site Trust as needed. The DOP Deed Restrictions allow limited use of the DOP North subject to certain conditions. The Brio Site Trust will work cooperatively with EPA to evaluate any proposed use of DOP North in accordance with the procedures and criteria outlined in the DOP Deed Restrictions. So long as all or any portion of the perimeter fencing remains at that portion of the DOP Site known as “DOP North,” such fencing will be repaired and, if warranted, replaced by the Brio Site Trust or its agents; provided, however, if the DOP North tract is authorized to be used for an Approved Limited Use, as defined in and permitted by the DOP Deed Restrictions, Brio Site Trust will, as part of the

BRIO SITE TASK FORCE MAINTENANCE, OPERATIONS, AND MONITORING PLAN

approval, seek to reach an equitable agreement with the landowner and/or person requesting the Approved Limited Use concerning future maintenance of the perimeter fencing for the DOP North tract. Although the Brio Site Trust intends to continue to be responsible for any fencing designed to restrict access to any undeveloped portion of the DOP North Tract, it is expected that the site owner and/or developer would be primarily responsible for site security for the developed portion of the property.

In the event the Brio Site Trust or its agents discovers any site activity or condition at the DOP Site or the Brio Site that conflicts with the Institutional Control Document, the Brio Site Trust or its agents will take appropriate measures to prevent the continuation of such activity or condition in accordance with the following procedure:

- 1) provide notice to EPA when a problem is identified;
- 2) provide an action plan to EPA either in writing or orally, as determined by EPA;
- 3) implement the action plan; and
- 4) provide to EPA an Annual Effectiveness Report for the Site with information about the status of the effectiveness of and compliance with the Institutional Control Document, including reports of the periodic site monitoring activity and the implementation of any action plan.

* * * * *

Annex 1 – Brio Site Trust Property Deed Restriction
Annex 2 – Lowe Brio Property Deed Restriction
Annex 3 – Defunct Company Property Deed Notice
Annex 4 – DOP Deed Restrictions

Annex 1

Brio Site Trust Property Deed Restriction

GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS

STATE OF TEXAS

§

KNOW ALL BY THESE PRESENTS THAT:

§

HARRIS COUNTY

§

§

THIS GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS is granted by **UMB Bank N.A. f/k/a State Street Bank and Trust Company of Missouri, N.A.**, as **Trustee of the Brio Site Trust**, in its fiduciary and not its individual capacity ("Grantor") in favor of **Brio Site Task Force** ("Grantee").

RECITALS

A. Grantor is the owner of certain real property located in Harris County, Texas, more particularly described in Exhibit A attached hereto and made a part hereof (the "Restricted Property"), which property is located within the boundaries of the site referred to as the Brio Refining Superfund Site, located in Harris County Texas and more particularly described in Exhibit B attached hereto and made a part hereof (the "Brio Site").

B. Grantee is a group consisting of settlers to the Brio Refining Site Amended Consent Decree between the United States and AMOCO Chemical Co., et al., entered on March 8, 1999 (the "Amended Consent Decree") or their successors-in-interest who have performed a remediation of the Brio Site located at 2501 Dixie Farm Road in southern Harris County, Texas, including remediation on the Restricted Property.

C. The Brio Site is the subject of a response action under the jurisdiction of the United States Environmental Protection Agency ("EPA") pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9601 *et seq.*, and the National Contingency Plan, 40 C.F.R. § 300.400 *et seq.*

D. Pursuant to section 105 of CERCLA, EPA placed the Brio Site on the National Priorities List, set forth at 40 C.F.R. Part 300, on March 31, 1989.

E. The EPA issued its Record of Decision (ROD) R06-88/031 for the Brio Site on March 31, 1988 (the "1988 ROD"). The EPA issued an Amended ROD for the Brio Site on July 2, 1997 (the "Amended ROD", and together with the 1988 ROD, the "Brio ROD").

F. In accordance with the terms of the 1988 ROD, the Amended ROD, the Administrative Order on Consent, Docket No. CERCLA VI-13-88, between the EPA and Brio Refining, Inc., entered in 1988; the Brio Site Consent Decree between the United States and AMOCO Chemical Co, et al., entered on April 4, 1991; and the Amended Consent Decree, remedial action was conducted at the Brio Site (the "Remedial Action") by the Brio Site Task Force, comprised of those parties listed on Exhibit C attached hereto and made a part hereof or their predecessors or successors-in-interest (the "Brio Settlers").

GRANT

NOW, THEREFORE, in consideration of the Brio Site Task Force's performance of remediation of the Brio Site and its ongoing responsibility for the Brio Site pursuant to the aforementioned Amended Consent Decree and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, Grantor covenants with the Grantee, EPA and their assigns, that he has the right to convey the easements, rights, obligations, covenants, and restrictions (collectively, the "Deed Restrictions") set forth herein, and Grantor further covenants with Grantee, EPA and their assigns that Grantor, his executors, heirs, successors and assigns will warrant and forever defend the same unto Grantee and its assigns forever against any person whomsoever claiming or to claim the same; and Grantor grants the Deed Restrictions in favor of Grantee and its assigns on the following terms and conditions:

1. Right of Access. Grantor hereby grants Grantee and its assigns a perpetual right of access in, on, upon, over, and through the Restricted Property for the purposes of: implementing, overseeing, operating, maintaining, and monitoring the remedial activities relating to the Brio Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the Brio Site.

2. Scope of Restrictions. These Deed Restrictions affect those portion of the tracts or parcels of real property in Harris County, Texas owned by Grantor as described in Exhibit A attached hereto and made a part hereof (the "Restricted Property").

3. Information Concerning Site Condition. The Brio Site Task Force performed a remediation of the Brio Site, including the Restricted Property. Information about the known waste constituents that have been left in place on the Restricted Property is attached hereto as Exhibit D and is made part of this filing. Further information concerning this matter may be found by an examination of the EPA's Brio Refining Superfund Site Administrative Record at EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202, and at the San Jacinto College-South Campus, 13735 Beamer Rd., Houston, Texas, 77089.

4. EPA Authority. EPA derives its authority to protect the environment and to review the remediation of the Brio Site from Section 101, *et seq.*, of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, and 40 C.F.R. Part 300. In accordance with this authority, EPA requires Grantor, as the owner of the Restricted Property, to provide the United States and its representatives access to the Restricted Property for the purposes of conducting any activity related to the Remedial Action. The Brio ROD recognized that permanent site control, including the imposition of necessary deed notices and restrictions (if possible) and restriction of access to the Brio Site, would be necessary. The Brio ROD also required long term, effective site control. Effective controls for the Restricted Property are described in Exhibits E attached hereto and made a part hereof.

5. TCEQ Authority. TCEQ derives its authority to investigate conditions on the Restricted Property from Texas Health and Safety Code, § 361.002, which enables TCEQ to

promulgate "closure and remediation" standards for hazardous waste sites to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §§ 5.012 and 5.013, Texas Water Code, Annotated, Chapter 5, TCEQ is given primary responsibility for implementing the laws of the State of Texas relating to water and to adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, TCEQ requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation.

6. Effect of Deed Restrictions. These Deed Restrictions do not constitute a representation or warranty by EPA nor TCEQ of the suitability of this land for any purpose, nor do they constitute any guarantee by EPA or TCEQ that the remediation standards specified herein have been met by the Brio Site Task Force.

7. Restrictions on Use. Contaminants and waste deposited hereon have been remediated to meet nonresidential (i.e., industrial/commercial) soil criteria in accordance with a plan designed to meet the requirements of the Brio ROD; 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce, to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care or engineering and institutional control measures in accordance with the risk reduction standards applicable at the time of this filing. Future use of the Restricted Property is limited as described in Exhibit E. Institutional or legal controls placed on the Restricted Property to ensure appropriate future use include these Deed Restrictions. The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the statutory authority of EPA and TCEQ.

8. Additional Information. The current owner of the Restricted Property is UMB Bank N.A. f/k/a State Street Bank and Trust Company of Missouri, N.A., as Trustee of the Brio Site Trust, in its fiduciary and not its individual capacity and the address where more specific information may be obtained is set forth in Section 3 above.

9. Provisions to Run with the Land. These Deed Restrictions set forth rights, liabilities, agreements, and obligations upon and subject to which the Restricted Property, or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements, and obligations herein set forth shall run with the Restricted Property, as applicable thereto, and any portion thereof, and shall inure to the benefit of the Grantee and EPA, as third party beneficiary, and their successors and be binding upon Grantor and all parties claiming by, through or under Grantor. The rights hereby granted to the Grantee, and its successors and assigns, include the right of Grantee and EPA, as third party beneficiary, to enforce these Deed Restrictions.

10. Grantor Concurrence. Grantor and all parties claiming by, through, or under Grantor covenant and agree with the provisions herein set forth and agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, subcontractors and employees, that the Deed Restrictions herein established shall be

adhered to and not violated and that their respective interests in the Restricted Property shall be subject to the provisions herein set forth.

11. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Deed Restriction fully or by reference, into all deeds, easements, mortgages, deeds of trust, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Restricted Property, or any portion thereof, is conveyed. Any transfer of the Restricted Property, or any portion thereof, shall take place only if the grantee agrees, as a part of the agreement to purchase or otherwise obtain an interest in the Property, that it will comply with the obligations of the Grantor to provide access and/or institutional controls, as set forth in these Deed Restrictions, with respect to such Restricted Property.

12. Severability. If any court or other tribunal determines that any provision of these Deed Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from these Deed Restrictions as though it had never been included herein. In either case, the remaining provisions of these Deed Restrictions shall remain in full force and effect.

13. Governing Law. It is expressly agreed that the law of the State of Texas is the law governing these Deed Restrictions and any disputes regarding its contents and interpretation.

14. Binding Effect. The covenants, terms, conditions, and restrictions of these Deed Restrictions shall be binding upon the Grantor and his personal representatives, heirs, successors, and assigns, and shall continue as a servitude running into perpetuity with the Restricted Property.

15. Captions. The captions in this instrument have been inserted solely for convenience of reference and are not part of this instrument and shall have no effect upon construction or interpretation.

16. Notices. Any notice required hereunder shall be in writing and shall be delivered by hand, reputable overnight carrier, or certified mail, return receipt requested as follows:

To Grantor:

UMB, N.A., as Trustee for the Brio Site Trust
Corporate Trust Division
Attn: Robert Clasquin
2 South Broadway, Suite 435
St. Louis, MO 63102-1713

To Grantee:

Brio Site Task Force
Attn: Project Manager
2501 Dixie Farm Road
Houston, Texas 77089

with a copy to:

Baker Botts L.L.P.
Attn: Aileen Hooks
98 San Jacinto Blvd., Suite 1500
Austin, Texas 78701-4039

To EPA:

Office of Regional Counsel
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

All notices shall be deemed effective three (3) business days after delivery by the means set forth above. Grantor, Grantee or EPA (or any of their respective successors) may change its address for by written notice to the others (or their respective successors).

EXECUTED this the 24 day of August, 2005.

UMB Bank N.A., as Trustee for the Brio Site Trust
in its fiduciary and not in its individual capacity

By: Robert Clasquin

Name: Robert Clasquin
Title: Vice President

AGREED:

Brio Site Task Force

By: Michael L. House

Name: Michael L. House
Title: Project Manager

STATE OF Missouri §
COUNTY OF St. Louis §

This instrument was acknowledged before me on August ²⁴, 2005, by Robert Clasquin, Vice President of UMB Bank N.A., a national banking association, as Trustee for the Brio Site Trust, in its fiduciary and not in its individual capacity, on behalf of said national banking association.

Jeremy B. Cheak
Notary Public in and for the State of MO
My Commission Expires: Sept 6, 2008
Jeremy B. Cheak
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
Commission No. 04582522
My Commission expires Sept 06, 2008

STATE OF Missouri §
COUNTY OF St. Charles §

This instrument was acknowledged before me on August ^{23rd}, 2005 by Michael L. House, as Project Manager of the Brio Site Task Force, on behalf of said task force.

Joani M. Madden
Notary Public in and for the State of Missouri
My Commission Expires: 6/29/08

JOANI M. MADDEN
Notary Public - State of Missouri
County of St. Charles
My Commission Expires Jun. 28, 2008

EXHIBIT A

DESCRIPTION OF RESTRICTED PROPERTY

Exhibit A

BRIO SUPERFUND SITE
2.1485 ACRES
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 1

Being a tract or parcel of land containing 2.1485 acres (93,588 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas Undivided 1/6th interest to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 2.1485 acre tract being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 630.00 feet to a three-quarter inch iron rod, found for the southwesterly corner of said 9.099 acre tract;

THENCE, South 48° 27' 39" East, departing said existing southeasterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 9.099 acre tract a distance of 24.15 feet to the intersection with a six foot chain link fence and POINT OF BEGINNING of the herein described tract;

THENCE, North 41° 39' 21" East, along said six foot chain link fence a distance of 151.50 feet to an angle point;

THENCE, South 49° 04' 25" East, continuing along said six foot chain link fence a distance of 181.55 feet to an angle point;

THENCE, South 48° 51' 56" East, continuing along said six foot chain link fence a distance of 349.87 feet to an angle point;

THENCE, South 51° 59' 12" East, continuing along said six foot chain link fence a distance of 75.30 feet to the intersection with the southeasterly property line of said 9.099 acre tract;

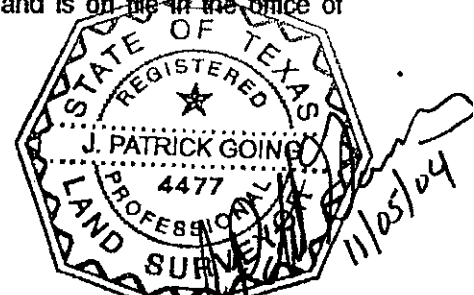
THENCE, South 42° 05' 08" West, along said southeasterly property line of the 9.099 acre tract a distance of 160.55 feet to a five-eighths inch iron rod with "Baseline Corp." cap, found for the southeasterly corner of the 9.099 acre tract;

THENCE, North 48° 27' 39" West, along said southwesterly property line of the 9.099 acre tract a distance of 605.34 feet to the POINT OF BEGINNING and containing 2.1485 acres (93,588 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434\WPM&B-DES-2-1485 ACRES

Exhibit A



| LINE | DISTANCE | BEARING |
|------|----------|---------------|
| L1 | 630.00' | S 42°05'00" W |
| L2 | 24.15' | S 48°27'39" E |
| L3 | 151.50' | N 41°39'21" E |
| L4 | 181.55' | S 49°04'25" E |
| L5 | 349.87' | S 48°51'56" E |
| L6 | 75.30' | S 51°59'12" E |
| L7 | 160.55' | S 42°05'08" W |
| L8 | 605.34' | N 48°27'39" W |

PERRY AND AUSTIN LEAGUE ABSTRACT 55

0 200 400 Feet

ROAD EASEMENT (PARCEL 5)
ROAD EASEMENT (PARCEL 7)
DCF NO. X715903 OPRRPHCT

CALLED 7.36573 ACRE TRACT
TRACT 1
ABILENE NATIONAL BANK AND
OREGONE WEST, INC.
TO
BRIO REFINING, INC.
EXECUTED FEBRUARY 1, 1984
HCCF NO. J358799 OPRRPHCT

QUITCLAIM
CALLED 1.4463 ACRE TRACT
RALPH LOWE
TO
FRIENDSWOOD REFINING CORP.
EXECUTED DECEMBER 18, 1979
HCCF NO. G389139 OPRRPHCT

CALLED 20 ACRE TRACT
MARJORIE MARTHA LOWE, et al
TO
RALPH LAWRENCE LOWE, JR.
EXECUTED DECEMBER 18, 2003
HCCF NO. X271408 OPRRPHCT

CALLED 9.099 ACRE TRACT
FIRST BAPTIST CHURCH OF DALLAS
TO
UMB BANK, N.A., TRUSTEE OF
THE BRIO SITE TRUST
EXECUTED MAY 19, 2002
HCCF NO. V822181 OPRRPHCT
UNDIVIDED 1/6TH INTEREST

NOTES

- 1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1968 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.
- 2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS.
JOB NUMBER 85.044.34

Exhibit A

EXHIBIT

2.1485 ACRES
93,588 SQ. FT.

BEING OUT OF
A CALLED 9.099 ACRE TRACT
IN THE

PERRY AND AUSTIN LEAGUE, A-55
HARRIS COUNTY, TEXAS

| | |
|--|---------------------|
| BASELINE CORPORATION PROFESSIONAL SURVEYORS 1708 BEAUMONT DRIVE, SUITE 4800, HOUSTON, TEXAS 77004 PHONE (713) 969-0155 FAX (713) 969-154 | |
| Scale : 1" = 200' | Job No. : 85.044.34 |
| Date : 11/12/2004 | FB No. : X-405 |
| Drawn by : CKT | Approved by : JPG |

34.523 ACRES
(1,503,831 SQUARE FEET)

W.D.C. HALL LEAGUE
ABSTRACT NO. 23
Page 1 of 4

State of Texas

County of Harris

Being a tract or parcel of land containing 34.523 acres (1,503,831 square feet), located in the W.D.C. Hall League, Abstract No. 23, Harris County, Texas, and being all of Southbend Section Three, Partial Replat as recorded under Film Code No. 380143 of the Harris County Map Records (HCMR), furthermore being a part of Southbend Section Two, Partial Replat as recorded under Film Code No. 380140 of said HCMR, and all of a certain called 2.736 acre tract of land conveyed by Southbend Properties, Inc. to Beamer Road Management Company by deed executed September 26, 1997 as filed for record under Harris County Clerk's File (HCCF) No. S659057 of the Official Public Records of Real Property of Harris County, Texas (OPRRPHCT). Said 34.523 acre tract being more particularly described by metes and bounds as follows:

All bearings are based upon the southeasterly line of said Partial Replat of Southbend Section Three.

BEGINNING at a 5/8-inch iron rod found for the most easterly corner of said 2.736 acre tract, being on the southwesterly right-of-way line of Beamer Road (100 feet wide), same being on the northwesterly line of a 30 foot wide road easement (unopened) dedicated to the public by the plat of Geo. W. Jenkins Subdivision as recorded in Volume 2, Page 52 of said HCMR;

THENCE, South 45 degrees 27 minutes 27 seconds West, departing the southwesterly right-of-way line of said Beamer Road and along the southeasterly line of said 2.736 acre tract, at a distance of 309.66 feet passing the most southerly corner thereof, and continuing along the southeasterly line of the aforementioned Southbend Section Three, Partial Replat for a total distance of 2423.79 feet to a 5/8-inch iron rod set for corner on the easterly line of Mud Gully (HCFCD Unit A120-00-00, 190 feet wide), dedicated per plat of Sagebend Section Three as recorded in Volume 298 Page 5 of said HCMR;

THENCE, South 82 degrees 50 minutes 32 seconds West, departing said southeasterly line of Southbend Section Three, Partial Replat and along the most easterly line of Mud Gully, same being the most westerly line of said Southbend Section Three, Partial Replat, a distance of 102.98 feet to a 5/8-inch iron rod set for the point of curvature of a curve to the right;

THENCE, in a northwesterly direction continuing along said common line of Mud Gully and Southbend Section Three, Partial Replat, with said curve to the right having a central angle of 75 degrees 52 minutes 54 seconds, a radius of 245.89 feet, a long chord length of 302.37 feet, bearing North 59 degrees 12 minutes 59 seconds West, a distance along the arc of 325.65 feet to a 5/8-inch iron rod found for the point of tangency;

Exhibit A

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 2 of 4

THENCE, North 21 degrees 16 minutes 29 seconds West, continuing along said common line, a distance of 84.49 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 12 degrees 59 minutes 37 seconds West, continuing along said common line, a distance of 183.20 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 00 degrees 47 minutes 45 seconds West, continuing along said common line, a distance of 75.12 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 18 degrees 38 minutes 50 seconds East, continuing along said common line, a distance of 170.74 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 14 degrees 37 minutes 08 seconds West, continuing along said common line, a distance of 227.76 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 60 degrees 31 minutes 52 seconds West, continuing along said common line of Mud Gully and Southbend, Section Three, Partial Replat, a distance of 82.00 feet to a 5/8-inch iron rod set for corner on the common line between the aforementioned Southbend Section Two Partial Replat and Southbend Section Three Partial Replat;

THENCE, North 32 degrees 16 minutes 12 seconds East, departing said easterly line of Mud Gully and continuing along said common line of Southbend Section Two, Partial Replat, and Southbend Section Three, Partial Replat, a distance of 204.48 feet to a 5/8-inch iron rod set for corner, from which a 1/2-inch iron rod found bears North 22 degrees 07 minutes East, a distance of 0.83 feet;

THENCE, South 60 degrees 01 minutes 13 seconds East, continuing along said common line, a distance of 402.87 feet to a 5/8-inch iron rod set for corner, from which a 1/2-inch iron rod found bears South 87 degrees 22 minutes East, a distance of 0.77 feet;

THENCE, North 29 degrees 58 minutes 47 seconds East, along the northerly line of a storm sewer access easement as shown on the aforementioned Southbend Section Two Partial Replat, a distance of 135.00 feet to a drill hole set in concrete for the point of curvature of a curve to the left;

THENCE, in a northwesterly direction along the northerly line of said storm sewer access easement with said curve to the left having a central angle of 85 degrees 28 minutes 30 seconds, a radius of 10.00 feet, a long chord length of 13.57 feet, bearing North 12 degrees 45 minutes 28 seconds West, and a distance along the arc of 14.92 feet to a drill hole set in concrete for the end of curve;

Exhibit A

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 3 of 4

THENCE, North 29 degrees 58 minutes 47 seconds East, continuing along the northerly line of said storm sewer access easement, as shown on Southbend Subdivision, Section Two, Partial Replat, a distance of 30.03 feet to a 5/8-inch iron rod set for corner;

THENCE, South 60 degrees 01 minutes 13 seconds East, along the easterly line of said storm sewer access easement, a distance of 178.92 feet to a 5/8-inch iron rod set for corner on the aforementioned common line between Southbend Section Two, Partial Replat and Southbend Section Three, Partial Replat;

THENCE, North 29 degrees 58 minutes 47 seconds East, along said common line, a distance of 64.32 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 859.52 feet to a 5/8-inch iron rod set for corner, from which a 5/8-inch iron rod found bears North 44 degrees 33 minutes East, a distance of 1.30 feet. Said set iron rod being on the westerly line of a certain called 2.750 acre tract as conveyed by Roosevelt Bank to Roosevelt Texas Holding Company, Inc. by deed executed November 10, 1994 as recorded under HCCF No. R157895 of said OPRRPHCT, said 2.750 acres is also called Olcott Gas Unit No. 2 Drill Site according to plat recorded under Volume 332, Page 146 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, along the common line of said 2.750 acre tract and the aforementioned Southbend Section Three, Partial Replat, a distance of 110.00 feet to a 5/8-inch iron rod set for corner;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 328.94 feet to a 5/8-inch iron rod set for corner on the northwesterly right-of-way line of South Hill Drive (60 feet wide) as shown on the original plat of Southbend Section Three as recorded in Volume 304, page 64 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, departing the northwesterly right-of-way line of said South Hill Drive, a distance of 60.00 feet to a 5/8-inch iron rod set for corner on the southeasterly right-of-way line of said South Hill Drive, same being the northerly line of said Southbend Section Three, Partial Replat;

THENCE, North 45 degrees 27 minutes 27 seconds East, along the southeasterly right-of-way line of said South Hill Drive, at a distance of 70.36 feet passing the northwesterly corner of the aforementioned 2.736 acre tract and continuing for a total distance of 370.03 feet to a 5/8-inch iron rod found for cut-back corner on the northerly line of the aforementioned 2.736 acre tract;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 4 of 4

THENCE, South 89 degrees 53 minutes 01 seconds East, with said cut-back, a distance of 14.21 feet to a 5/8-inch iron rod found on the southwesterly right-of-way line of Beamer Road (100 feet wide);

THENCE, South 45 degrees 13 minutes 30 second East, along the common line of said Beamer Road and said 2.736 acre tract, a distance of 375.03 feet to the POINT OF BEGINNING and containing 34.523 acres (1,503,831 square feet);

This description is based on a Land Title Survey and Plat by J. Patrick Going, Registered Professional Land Surveyor, License Number 4477, completed April 30, 1998, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.13

April 30, 1998
LRB:bgb
Job No. 85.044.13
File: BLACAD\85044\8504413\WP\M&B-DES



Exhibit A

EXHIBIT B

DESCRIPTION OF BRIO REFINING SUPERFUND SITE

The legal description of the Site, described in two tracts, is presented on the next seven pages.

**BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 1 OF 3**

Being a tract or parcel of land containing 70.1767 acres (3,056,899 square feet), located in the W.D.C Hall League, Abstract No. 23, Harris County, Texas, and being out of a called 46.7149 acre tract (tract 2) described in deed executed February 1, 1984 from Abilene National Bank and Oregone West, Inc. to Brio Refining, Inc. recorded under Harris County Clerks File (HCCF) No. J358799 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 34.523 acre tract described in deed executed November 20, 1998 from Beamer Road Management Company to State Street Bank and Trust Company of Missouri, N.A. as Trustee of the Brio Site Trust recorded under HCCF No. T396582 of the OPRRPHCT, a called 4.7409 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT, and a called 3.0 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT. Said 70.1767 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a five-eighths inch iron rod with TxDot Aluminum cap, found at the southerly end of the existing cutback at the southwest corner of Dixie Farm Road (width varies) and Beamer Road (100 feet wide) as recorded under HCCF No. X966559 (Parcel 9) of the OPRRPHCT;

THENCE, South 40° 23' 53" West, along the existing northwesterly right-of-way (easement) line of Dixie Farm Road a distance of 320.54 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, North 49° 36' 07" West, departing the existing northwesterly right-of-way line of Dixie Farm Road at a right angle a distance of 1.16 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

North 48° 09' 07" West, 21.74 feet to an angle point;
North 17° 33' 33" East, 122.96 feet to an angle point;
North 11° 23' 57" East, 63.46 feet to an angle point;
North 01° 16' 14" East, 96.73 feet to an angle point;
North 06° 36' 50" West, 59.61 feet to an angle point;
North 27° 28' 33" West, 60.66 feet to an angle point;
North 40° 57' 43" West, 32.44 feet to an angle point;
North 48° 49' 40" West, 191.49 feet to an angle point;
North 75° 26' 06" West, 32.23 feet to an angle point;
North 87° 32' 13" West, 270.07 feet to an angle point;
South 72° 29' 50" West, 39.34 feet to an angle point;
North 86° 39' 01" West, 138.27 feet to an angle point;
North 48° 31' 03" West, 78.40 feet to an angle point;

BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 2 OF 3

THENCE, North 05° 02' 42" West, departing said six foot chain link fence a distance of 40.90 feet to a point at the southwest corner of a called 2.736 acre tract described in deed executed September 26, 1997, from Southbend Properties, Inc. to Beamer Road Management Company, recorded under HCCF No. S659057 of the OPRRPACT;

THENCE, North 48° 31' 43" West, along the west property line of said called 2.736 acre tract a distance of 382.66 feet to a point at the intersection with said six foot chain link fence;

THENCE, continuing along the meanders of said six foot chain link fence the following courses;

South 42° 05' 04" West, 89.35 feet to an angle point;
North 47° 59' 35" West, 59.34 feet to an angle point;
South 42° 11' 07" West, 310.94 feet to an angle point;
South 48° 25' 54" East, 8.97 feet to an angle point;
South 42° 09' 42" West, 467.35 feet to an angle point;
South 42° 05' 37" West, 297.90 feet to an angle point;
South 37° 21' 04" West, 129.93 feet to an angle point;
South 66° 54' 05" West, 10.01 feet to an angle point;
North 63° 21' 22" West, 268.95 feet to an angle point;
South 26° 36' 11" West, 378.18 feet to an angle point;
South 26° 27' 57" West, 285.79 feet to an angle point;
South 25° 52' 09" West, 208.60 feet to an angle point;
South 22° 42' 10" East, 208.14 feet to an angle point;
South 73° 36' 01" East, 178.41 feet to an angle point;
North 85° 44' 59" East, 108.02 feet to an angle point;
South 23° 38' 01" East, 28.43 feet to an angle point;
South 88° 29' 16" East, 30.47 feet to an angle point;
North 88° 10' 58" East, 69.50 feet to an angle point;
South 81° 15' 09" East, 110.66 feet to an angle point;
South 82° 13' 46" East, 189.90 feet to an angle point;
South 82° 35' 38" East, 159.32 feet to an angle point;
South 82° 20' 16" East, 170.02 feet to an angle point;
South 74° 02' 38" East, 140.18 feet to an angle point;
South 76° 58' 43" East, 128.51 feet to an angle point;
South 87° 38' 56" East, 29.35 feet to an angle point;
South 77° 48' 01" East, 173.77 feet to an angle point;
South 50° 43' 24" East, 8.59 feet to an angle point;
North 41° 56' 08" East, 96.21 feet to an angle point;
North 41° 23' 20" East, 349.10 feet to an angle point;
North 40° 18' 15" East, 338.94 feet to an angle point;
North 39° 00' 49" East, 270.04 feet to an angle point;
North 39° 52' 38" East, 415.21 feet to an angle point;

BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 3 OF 3

North 40° 26' 43" East, 23.12 feet to the POINT OF BEGINNING and containing 70.1767 acres (3,056,899 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED 04/01/05: REMOVED CALL FOR 2.736 ACRE TRACT IN PREAMBLE

REVISED 12/10/04: ADDED CALL FOR 2.736 ACRE TRACT

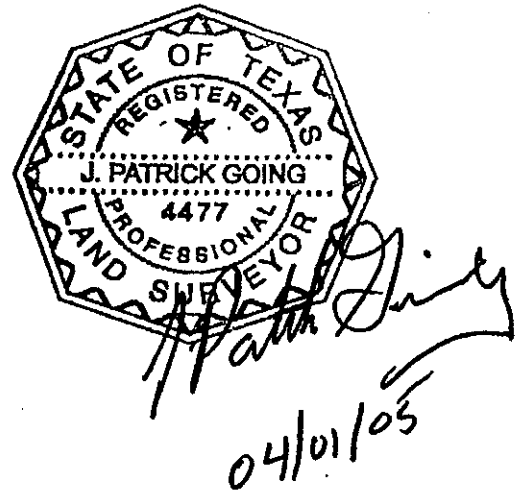
REVISED 11/11/04:

November 5, 2004

Job No. 85.044.34

CKT:bgb

File: BLACAD\8504434\WPM&B-DES-70-1767-ACRES-TRACT-1.DOC



**BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 2**

Being a tract or parcel of land containing 19.7300 acres (859,441 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 20 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271408 of the OPRRPHCT, a called 7.36573 acre tract (tract 1) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brio Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 0.73352 acre tract (tract 1) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 6.55014 acre tract (tract 3) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 0.39904 acre tract (tract 4) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brio Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 1.4463 acre tract described in deed executed December 18, 1979 from Ralph Lowe to Friendswood Refining Corp. recorded under HCCF No. G389139 of the OPRRPHCT, a called 0.278 acre tract and a called 1.196 acre tract described in deed executed August 30, 1978, recorded under HCCF No. F790654 of the OPRRPHCT, as well as that certain called 0.754 acre tract. Said 19.7300 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 478.27 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, South 47° 55' 00" East, departing the proposed southeasterly right-of-way line of Dixie Farm Road at a right angle a distance of 23.02 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

South 49° 04' 25" East, 181.55 feet to an angle point;
South 48° 51' 56" East, 349.87 feet to an angle point;
South 51° 59' 12" East, 186.08 feet to an angle point;
South 41° 30' 58" West, 178.94 feet to an angle point;
South 41° 39' 01" West, 342.35 feet to an angle point;

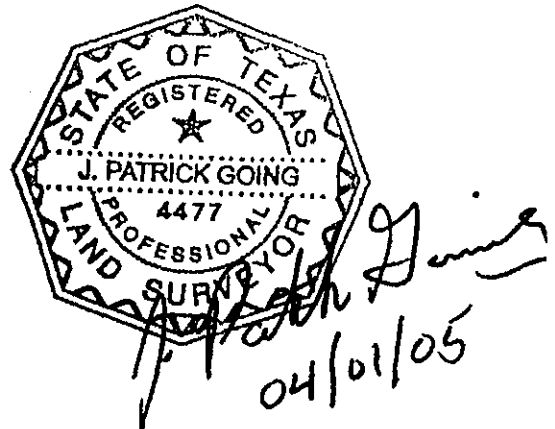
BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 2 OF 2

South 41° 36' 37" West, 203.44 feet to an angle point;
South 42° 03' 34" West, 223.47 feet to an angle point;
South 43° 16' 25" West, 289.37 feet to an angle point;
South 86° 15' 07" West, 65.50 feet to an angle point;
South 86° 53' 00" West, 107.38 feet to an angle point;
North 10° 57' 07" West, 28.03 feet to an angle point;
North 43° 53' 17" West, 15.41 feet to an angle point;
North 45° 30' 17" East, 10.60 feet to an angle point;
North 16° 26' 16" West, 27.41 feet to an angle point;
North 18° 07' 29" West, 50.34 feet to an angle point;
North 20° 09' 20" West, 50.64 feet to an angle point;
North 22° 26' 02" West, 50.02 feet to an angle point;
North 27° 09' 14" West, 51.05 feet to an angle point;
North 34° 14' 53" West, 51.08 feet to an angle point;
North 40° 03' 57" West, 50.13 feet to an angle point;
North 45° 54' 05" West, 50.80 feet to an angle point;
North 51° 46' 01" West, 50.59 feet to an angle point;
North 58° 28' 37" West, 60.60 feet to an angle point;
North 62° 47' 53" West, 13.88 feet to an angle point;
North 42° 02' 05" East, 293.66 feet to an angle point;
North 04° 10' 17" West, 76.51 feet to an angle point;
North 39° 53' 20" East, 188.68 feet to an angle point;
North 39° 43' 59" East, 242.49 feet to an angle point;
North 40° 18' 39" East, 189.73 feet to an angle point;

North 41° 39' 21" East, 237.30 feet to the POINT OF BEGINNING and containing 19.7300 acres (859,441 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED: 04/01/05 CHANGED PAGE NUMBER ON PAGE 2
REVISED 12/10/04: ADDED CALL FOR 1.196 ACRE TRACT
REVISED 11/10/04: ADDED 1.4463 ACRE TRACT RECORDING
November 5, 2004
Job No. 85.044.34
CKT:bgb
File: BLACAD\8504434\WP\M&B-DES-19-7300-ACRES-TRACT 2



THENCE from said beginning corner S45°00'00"W, along the Northwest line of the Southeast 1/2 of Lot 71, a distance of 104.65 feet to a point for corner, being the West corner of the Southeast 1/2 of Lot 71; THENCE S45°00'00"E, along the Southwest line of the Southeast 1/2 of Lot 71, a distance of 115.92 feet to a point for corner in an existing fence line; THENCE along said existing fence line N45°00'00"E, a distance of 104.65 feet to a point for corner; THENCE N45°00'00", parallel to the Northeast line of Lot 71, a distance of 115.93 feet to the place of beginning and containing 0.27849 acres, (12,131 square feet) more or less.

Also a tract of Northwest 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6 of the Map Records of Harris County, and further described as follows:

Commencing at the West corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE. S45°00'00"E, along the Southwest line of Lot 71, a distance of 337.70 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner, continuing S45°00'00"E, along the Southwest line of Lot 71, a distance of 322.30 feet to a point for corner being the South corner of the West 1/2 of Lot 71; Thence N45°00'00"E, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 104.65 feet to a point for corner; THENCE N41°34'10"W, a distance of 70.00 feet to a point for corner; THENCE S48°25'50"W, a distance of 17.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 35.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 3.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 6.00 feet to a point for corner, THENCE N48°25'50"E, a distance of 14.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 156.46 feet to a point for corner; THENCE S48°25'50"W, a distance of 79.73 feet to a point for corner; THENCE N40°39'10"W, a distance of 50.53 feet to a point for corner; THENCE S45°12'50"W, a distance of 44.89 feet to the place of beginning and containing 0.73352. acres (31,952 square feet), more or less.

Exhibit B

EXHIBIT C

BRIO SITE TASK FORCE MEMBERS

BP Amoco Chemical Company

Arco Environmental Remediation LLC
for Atlantic Richfield Company

BFI Waste Systems of North America, Inc., as successor to
Browning-Ferris Inc. (Delaware)

Chevron Chemical Company LLC
for Gulf Oil Corporation

Fina Oil and Chemical Company
for Cos-Mar Company

GE Petrochemicals, Inc.
for Borg Warner Petrochemicals, Inc.

GE Petrochemicals, Inc.
for Cos-Mar Company

Hoechst Celanese Corporation
formerly American Hoechst Corporation,
now known as HNA Holdings, Inc.

Huntsman Corp.
for El Paso Products Company

Monsanto Company

Solutia Inc.

Union Carbide Corporation

* * * * *

EXHIBIT D

KNOWN WASTE CONSTITUENTS LEFT IN PLACE

The following primary constituents, along with other unlisted constituents, are known to be left in place at the Brio Superfund Site:

1. 1, 2 dichloroethane
2. 1, 1, 2 trichloroethane
3. vinyl chloride
4. bis (2-chloroethyl) ether
5. methylene chloride
6. phenanthrene
7. naphthalene
8. flouranthene

For information about the known concentrations of these constituents, refer to Table 1 of the March 31, 1988, Record of Decision for the Brio Refining Site, which is included as Attachment A to the Brio Site Consent Decree.

* * * * *

EXHIBIT E

BRIO SUPERFUND SITE RESTRICTIONS

Except as necessary or appropriate to implement, oversee, operate, maintain and monitor the remedial activities, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the Site, the Site shall not be used for any of the following activities or purposes:

- animal grazing;
- animal husbandry;
- hay or crop production and harvesting;
- any other agricultural or commercial activity;
- installation and operation of any groundwater wells for human or stock watering purposes;
- installation and operation of disposal wells;
- any human habitation or residence, either temporary or permanent;
- recreational, hunting, fishing, hiking, exercising, and athletic activities;
- drilling, mining, seismic exploration, surface construction with the intent to drill or mine, or any other similar surface or subsurface activity;
- blasting or any other use of explosives; or
- any casual pursuit of activity;

and the Site shall only be used for such uses and activities as may be required or permitted pursuant to an Order issued by the Environmental Protection Agency.

* * * * *

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me, and was duly RECORDED in the Official Public Records of Real Property of Harris County Texas on

AUG 30 2005



Dorely B. Hayden

COUNTY CLERK
HARRIS COUNTY TEXAS

2005 AUG 30 PM 2:23
FILED
HARRIS COUNTY TEXAS

Annex 2

Lowe Brio Property Deed Restriction

875 05/1230

HOLD FOR TEXAS AMERICAN TITLE COMPANY ✓

GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS

STATE OF TEXAS

§

§

KNOW ALL BY THESE PRESENTS THAT:

§

HARRIS COUNTY

§

THIS GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS is granted by **RALPH LAWRENCE LOWE, JR.** ("Grantor") in favor of **UMB Bank N.A.**, a national banking association, as Trustee for the Brio Site Trust, in its fiduciary and not in its individual capacity ("Grantee"), as the owner of the Benefited Property (hereinafter defined).

RECITALS

A. Grantor is the owner of certain real property located in Harris County, Texas, more particularly described in Exhibit A attached hereto and made a part hereof (the "Restricted Property"), which property is located within the boundaries of the site referred to as the Brio Refining Superfund Site, located in Harris County Texas and more particularly described in Exhibit B attached hereto and made a part hereof (the "Brio Site").

B. Grantee is the owner of certain real property adjacent to and/or in the vicinity of the Restricted Property, which property is more particularly described in Exhibit C attached hereto and made a part hereof (the "Benefited Property").

C. The Brio Site is the subject of a response action under the jurisdiction of the United States Environmental Protection Agency ("EPA") pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9601 *et seq.*, and the National Contingency Plan, 40 C.F.R. § 300.400 *et seq.*

D. Pursuant to section 105 of CERCLA, EPA placed the Brio Site on the National Priorities List, set forth at 40 C.F.R. Part 300, on March 31, 1989.

E. The EPA issued its Record of Decision (ROD) R06-88/031 for the Brio Site on March 31, 1988 (the "1988 ROD"). The EPA issued an Amended ROD for the Brio Site on July 2, 1997 (the "Amended ROD").

F. In accordance with the terms of the 1988 ROD, the Amended ROD, the Administrative Order on Consent, Docket No. CERCLA VI-13-88, between the EPA and Brio Refining, Inc., entered in 1988; the Brio Site Consent Decree between the United States and AMOCO Chemical Co, et al., entered on April 4, 1991; and the Brio Refining Site Amended Consent Decree between the United States and AMOCO Chemical Co., et al., entered on March 8, 1999 (the "Amended Consent Decree"), remedial action was conducted at the Brio Site (the "Remedial Action") by the Brio Site Task Force, comprised of those parties listed on Exhibit D attached hereto and made a part hereof or their predecessors or successors-in-interest (the "Brio Settlers").

G. Pursuant to the terms of that certain Consent Decree between the United States and Ralph L. Lowe, the then owner of the Restricted Property, entered on December 28, 1992 (the "Lowe Consent Decree"), the owner of the Restricted Property, Ralph L. Lowe, agreed to comply with any requirements in the Record of Decision for the Brio Site applicable to owners of any portion of the Site, which included the placement of certain restrictions on the use of the Brio Site and the grant certain rights of access in order to maintain the integrity and effectiveness of the Remedial Action.

GRANT

NOW, THEREFORE, in consideration of the agreements reached in the Lowe Consent Decree and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, Grantor covenants with the Grantee, EPA and their assigns, that he has the right to convey the easements, rights, obligations, covenants, and restrictions (collectively, the "Deed Restrictions") set forth herein, and Grantor further covenants with Grantee, EPA and their assigns that Grantor, his executors, heirs, successors and assigns will warrant and forever defend the same unto Grantee and its assigns forever against any person whomsoever claiming or to claim the same; and Grantor grants the Deed Restrictions in favor of Grantee and its assigns on the following terms and conditions:

1. Right of Access. Grantor hereby grants Grantee and its assigns a perpetual right of access in, on, upon, over, and through the Restricted Property for the purposes of: implementing, overseeing, operating, maintaining, and monitoring the remedial activities relating to the Brio Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the Brio Site.
2. Scope of Restrictions. These Deed Restrictions affect those portion of the tracts or parcels of real property in Harris County, Texas owned by Grantor as described in Exhibit A attached hereto and made a part hereof (the "Restricted Property").
3. Information Concerning Site Condition. The Brio Site Task Force performed a remediation of the Brio Site, including the Restricted Property. Information about the known waste constituents that have been left in place on the Restricted Property is attached hereto as Exhibit E and is made part of this filing. Further information concerning this matter may be found by an examination of the EPA's Brio Refining Superfund Site Administrative Record at EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202, and at the San Jacinto College-South Campus, 13735 Beamer Rd., Houston, Texas, 77089.
4. EPA Authority. EPA derives its authority to protect the environment and to review the remediation of the Brio Site from Section 101, *et seq.*, of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, and 40 C.F.R. Part 300. In accordance with this authority, EPA requires Grantor, as the owner of the Restricted Property, to provide the United States and its representatives access to the Restricted Property for the purposes of conducting any activity related to the Remedial Action and the Lowe Consent Decree. Under the Lowe Consent Decree,

the then owner of the Restricted Property, Ralph L. Lowe, agreed to comply with any requirements in the Record of Decision for the Brio Site applicable to owners of any portion of the Brio Site. The 1988 ROD and the Lowe Consent Decree recognized that permanent site control, including the imposition of necessary deed notices and restrictions (if possible) and restriction of access to the Brio Site, would be necessary. The 1988 ROD and the Lowe Consent Decree also required long term, effective site control. Effective controls for the Restricted Property are described in Exhibits F attached hereto and made a part hereof.

5. TCEQ Authority. TCEQ derives its authority to investigate conditions on the Restricted Property from Texas Health and Safety Code, § 361.002, which enables TCEQ to promulgate "closure and remediation" standards for hazardous waste sites to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §§ 5.012 and 5.013, Texas Water Code, Annotated, Chapter 5, TCEQ is given primary responsibility for implementing the laws of the State of Texas relating to water and to adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, TCEQ requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation.

6. Effect of Deed Restrictions. These Deed Restrictions do not constitute a representation or warranty by EPA nor TCEQ of the suitability of this land for any purpose, nor do they constitute any guarantee by EPA or TCEQ that the remediation standards specified herein have been met by the Brio Site Task Force.

7. Restrictions on Use. Contaminants and waste deposited hereon have been remediated to meet nonresidential (i.e., industrial/commercial) soil criteria in accordance with a plan designed to meet the requirements of the 1998 ROD; 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce, to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care or engineering and institutional control measures in accordance with the risk reduction standards applicable at the time of this filing. Future use of the Restricted Property is limited as described in Exhibit F. Institutional or legal controls placed on the Restricted Property to ensure appropriate future use include the Lowe Consent Decree and these Deed Restrictions. The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the statutory authority of EPA and TCEQ.

8. Additional Information. The current owner of the Restricted Property is Ralph Lawrence Lowe, Jr. and the address, where more specific information may be obtained is set forth in Section 3 above.

9. Provisions to Run with the Land. These Deed Restrictions set forth rights, liabilities, agreements, and obligations upon and subject to which the Restricted Property, or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements, and obligations herein set forth shall run with

the Restricted Property, as applicable thereto, and any portion thereof, and shall inure to the benefit of the Grantee and EPA, as third party beneficiary, and their successors and be binding upon Grantor and all parties claiming by, through or under Grantor. The rights hereby granted to the Grantee, and its successors and assigns, include the right of Grantee and EPA, as third party beneficiary, to enforce these Deed Restrictions.

10. Grantor Concurrence. Grantor and all parties claiming by, through, or under Grantor covenant and agree with the provisions herein set forth and agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, subcontractors and employees, that the Deed Restrictions herein established shall be adhered to and not violated and that their respective interests in the Restricted Property shall be subject to the provisions herein set forth.

11. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Deed Restriction fully or by reference, into all deeds, easements, mortgages, deeds of trust, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Restricted Property, or any portion thereof, is conveyed. Any transfer of the Restricted Property, or any portion thereof, shall take place only if the grantee agrees, as a part of the agreement to purchase or otherwise obtain an interest in the Property, that it will comply with the obligations of the Grantor to provide access and/or institutional controls, as set forth in these Deed Restrictions, with respect to such Restricted Property.

12. Severability. If any court or other tribunal determines that any provision of these Deed Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from these Deed Restrictions as though it had never been included herein. In either case, the remaining provisions of these Deed Restrictions shall remain in full force and effect.

13. Governing Law. It is expressly agreed that the law of the State of Texas is the law governing these Deed Restrictions and any disputes regarding its contents and interpretation.

14. Binding Effect. The covenants, terms, conditions, and restrictions of these Deed Restrictions shall be binding upon the Grantor and his personal representatives, heirs, successors, and assigns, and shall continue as a servitude running into perpetuity with the Restricted Property.

15. Captions. The captions in this instrument have been inserted solely for convenience of reference and are not part of this instrument and shall have no effect upon construction or interpretation.

16. Notices. Any notice required hereunder shall be in writing and shall be delivered by hand, reputable overnight carrier, or certified mail, return receipt requested as follows:

To Grantor:

Ralph Lawrence Lowe, Jr.
3009 Green Tee
Pearland, Texas 77581

To Grantee:

UMB, N.A., as Trustee for the Brio Site Trust
Corporate Trust Division
Attn: Robert Clasquin
2 South Broadway, Suite 435
St. Louis, MO 63102-1713

with a copy to:

Baker Botts L.L.P.
Attn: Aileen Hooks
98 San Jacinto Blvd., Suite 1500
Austin, Texas 78701-4039

To EPA:

Office of Regional Counsel
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

All notices shall be deemed effective three (3) business days after delivery by the means set forth above. Grantor, Grantee or EPA (or any of their respective successors) may change its address for by written notice to the others (or their respective successors).

EXECUTED this the 19 day of August, 2005.

RALPH LAWRENCE LOWE, JR.

AGREED:

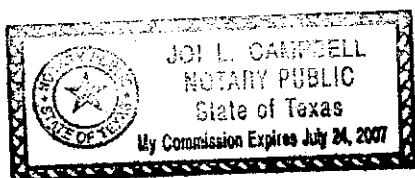
UMB, N.A., as Trustee for the Brio Site Trust
in its fiduciary and not in its individual capacity

By: [Signature]
Name: Robert Clasquin
Title: Vice President

STATE OF TEXAS §
 §
COUNTY OF Brazoria §

BEFORE ME, on this the 19th day of August, 2005, personally appeared **Ralph Lawrence Lowe, Jr.** whose name is subscribed to the foregoing instrument; and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19th day of August, 2005.



[Signature]
Notary Public in and for the State of Texas

EXHIBIT A

DESCRIPTION OF RESTRICTED PROPERTY

The legal description of the restricted property, described in five tracts, is presented on the next eight pages.

TRACT 1 of 5

A TRACT OR PARCEL OF LAND CONTAINING 1.196 ACRES OF LAND, MORE OR LESS, OUT OF THE LOWE CALLED 20.00 ACRE TRACT OUT OF LOT 71 OF HOIDALE AND COFFMAN SUBDIVISION OF THE PERRY AND AUSTIN LEAGUE, AN ADDITION IN HARRIS COUNTY, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF.

Commencing at the North corner of Lot 71, said point lying in the centerline of Choate Road, 60 foot right of way; THENCE S45°00'00"E, along the Northeast line of Lot 71, a distance of 660 feet to the common lot corners of Lots 74, 75, the Southeast 1/2 of Lot 71, and the Northwest 1/2 of Lot 71; THENCE S45°00'00"W, along the Southeast line of the Northwest 1/2 of Lot 71, 100.00 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"W, along the Northwest line of the Southeast 1/2 of Lot 71, a distance of 455.35 feet to a point for corner; THENCE S45°00'00"E, parallel to the Northeast line of Lot 71, a distance of 115.93 feet to a point for corner in an existing fence line; THENCE along said existing fence line N44°39'06"E, 210.78 feet and N44°31'58"E, 244.58 feet to a point for corner; THENCE N45°W, parallel to the Northeast line of Lot 71, a distance of 112.65 feet to the place of beginning and containing 1.19600 acres (52,098 square feet), more or less.

Exhibit A

TRACT 2 of 5

Being a tract or parcel of land containing 3.1332 acres (136,484 square feet), located in the W.D.C Hall League, Abstract No. 23, Harris County, Texas, and being out of a called 4.7409 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under Harris County Clerks File (HCCF) No. X271411 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 3.1332 acre tract being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a five-eighths inch iron rod with TxDot Aluminum cap, found at the southerly end of the existing cutback at the southwest corner of Dixie Farm Road (width varies) and Beamer Road (100 feet wide) as recorded under HCCF No. X966559 (Parcel 9) of the OPRRPHCT;

THENCE, South 40° 23' 53" West, along the existing northwesterly right-of-way (easement) line of Dixie Farm Road a distance of 318.14 feet to a five-eighths inch iron rod with TxDot Aluminum cap, found on the southwesterly line of said 4.7409 acre tract;

THENCE, North 48° 31' 03" West, departing the existing northwesterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 4.7409 acre tract a distance of 23.86 feet to the intersection with a six foot chain link fence and POINT OF BEGINNING of the herein described tract;

THENCE, North 48° 31' 03" West, continuing along said southwesterly property line of the 4.7409 acre tract a distance of 542.39 feet to a point for the southwesterly corner of the 4.7409 acre tract and the southeasterly corner of a called 3.0 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT;

THENCE, North 41° 28' 57" East, along the common property line of said 4.7409 acre tract and said 3.0 acre tract a distance of 251.92 feet to the intersection with a six foot chain link fence;

THENCE, South 87° 32' 13" East, along said six foot chain link fence a distance of 59.10 feet to an angle point;

THENCE, South 75° 26' 06" East, continuing along said six foot chain link fence a distance of 32.23 feet to an angle point;

THENCE, South 48° 49' 40" East, continuing along said six foot chain link fence a distance of 191.49 feet to an angle point;

THENCE, South 40° 57' 43" East, continuing along said six foot chain link fence a distance of 32.44 feet to an angle point;

BRIO SUPERFUND SITE
3.1332 ACRES
W.D.C. HALL LEAGUE A-23
PAGE 2 OF 2

THENCE, South 27° 28' 33" East, continuing along said six foot chain link fence a distance of 60.66 feet to an angle point;

THENCE, South 06° 36' 50" East, continuing along said six foot chain link fence a distance of 59.61 feet to an angle point;

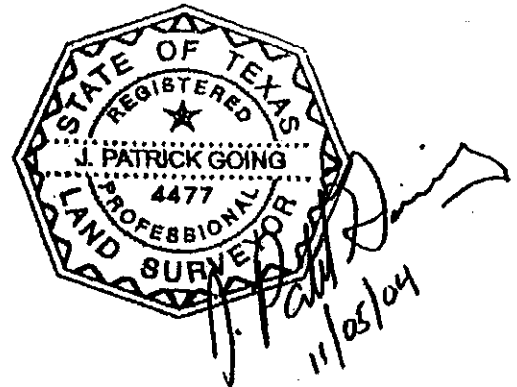
THENCE, South 01° 16' 14" West, continuing along said six foot chain link fence a distance of 96.73 feet to an angle point;

THENCE, South 11° 23' 57" West, continuing along said six foot chain link fence a distance of 63.46 feet to an angle point;

THENCE, South 17° 33' 33" West, continuing along said six foot chain link fence a distance of 120.46 feet to the POINT OF BEGINNING and containing 3.1332 acres (136,484 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434\WPWM&B-DES-3-1332 ACRES



| LINE | DISTANCE | BEARING |
|------|----------|---------------|
| L1 | 318.14' | S 40°23'53" W |
| L2 | 23.86' | N 48°31'03" W |
| L3 | 542.39' | N 48°31'03" W |
| L4 | 251.92' | N 41°28'57" E |
| L5 | 59.10' | S 87°32'13" E |
| L6 | 32.23' | S 75°26'06" E |
| L7 | 191.49' | S 48°49'40" E |
| L8 | 32.44' | S 40°57'43" E |
| L9 | 60.66' | S 27°28'33" E |
| L10 | 59.61' | S 06°36'50" E |
| L11 | 96.73' | S 01°16'14" W |
| L12 | 63.46' | S 11°23'57" W |
| L13 | 120.46' | S 17°33'33" W |

W.D.C. HALL LEAGUE ABSTRACT 23

0 200 400 Feet

CALLLED 46.7149 ACRE TRACT
TRACT 2
ABILENE NATIONAL BANK AND
OREGONE WEST, INC.
TO
BRIO REFINING, INC.
EXECUTED FEBRUARY 1, 1984
HCCF NO. J358799 OPRPHCT

ROAD EASEMENT (PARCEL 6)
HCCF NO. X715903 OPRPHCT
EXISTING ROW

DIXIE FARM ROAD

PROPOSED ROW

3.1332 AC.

CALLLED 3.0 ACRE TRACT
MARJORIE MARTHA LOWE, et al
TO
RALPH LAWRENCE LOWE, JR.
EXECUTED DECEMBER 18, 2003
HCCF NO. X271411 OPRPHCT

CALLLED 4.7409 ACRE TRACT
MARJORIE MARTHA LOWE, et al
TO
RALPH LAWRENCE LOWE, JR.
EXECUTED DECEMBER 18, 2003
HCCF NO. X271411 OPRPHCT

POC
FND. 5/8" IR W/TXDOT CAP

ROAD EASEMENT (PARCEL 9)
HCCF NO. X966559 OPRPHCT

NOTES

- 1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1988 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.
- 2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS.
JOB NUMBER 85.044.34

EXHIBIT

3.1332 ACRES
136,484 SQ. FT.

BEGING OUT OF
A CALLLED 4.7409 ACRE TRACT
IN THE
W.D.C. HALL LEAGUE, A-23
HARRIS COUNTY, TEXAS

| BASELINE CORPORATION | |
|--|---------------------|
| PROFESSIONAL SURVEYORS | |
| 1100 BEAUMONT DRIVE, SUITE 200, HOUSTON, TEXAS 77008 | |
| PHONE (713) 500-0100 FAX (713) 500-1144 | |
| Scale : 1" = 200' | Job No. : 85.044.34 |
| Date : 11/11/2004 | FB No. : X-405 |
| Drawn by : CKT | Approved by : JPG |

TRACT 3 of 5

Being a tract or parcel of land containing 0.8522 of one acre (37,121 square feet), located in the W.D.C Hall League, Abstract No. 23, Harris County, Texas, and being out of a called 3.0 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under Harris County Clerks File (HCCF) No. X271411 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 0.8522 of one acre being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are based upon the 1988 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a five-eighths inch iron rod with TxDot Aluminum cap, found at the southerly end of the existing cutback at the southwest corner of Dixie Farm Road (width varies) and Beamer Road (100 feet wide) as recorded under HCCF No. X966559 (Parcel 9) of the OPRRPHCT;

THENCE, South 40° 23' 53" West, along the existing northwesterly right-of-way (easement) line of Dixie Farm Road a distance of 318.14 feet to a five-eighths inch iron rod with TxDot Aluminum cap, found on the southwesterly line of a called 4.7409 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT;

THENCE, North 48° 31' 03" West, departing the existing northwesterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 4.7409 acre tract a distance of 588.25 feet to the southwesterly corner of said 4.7409 acre tract and the southeasterly corner of said 3.0 acre tract and POINT OF BEGINNING of the herein described tract;

THENCE, North 48° 31' 03" West, along the southwesterly property line of said 3.0 acre tract a distance of 292.94 feet to the intersection with a six foot chain link fence;

THENCE, South 86° 39' 01" East, along said six foot chain link fence a distance of 138.27 feet to an angle point;

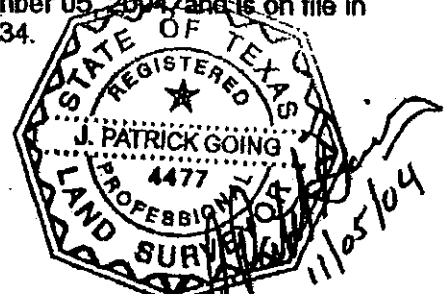
THENCE, North 72° 29' 50" East, continuing along said six foot chain link fence a distance of 39.34 feet to an angle point;

THENCE, South 87° 32' 13" East, continuing along said six foot chain link fence a distance of 210.97 feet to the intersection with the common property line of said 3.0 acre tract and said 4.7409 acre tract;

THENCE, South 41° 28' 57" West, along said common property line of the 3.0 acre tract and the 4.7409 acre tract a distance of 251.92 feet to the POINT OF BEGINNING and containing 0.8522 of one acre (37,121 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

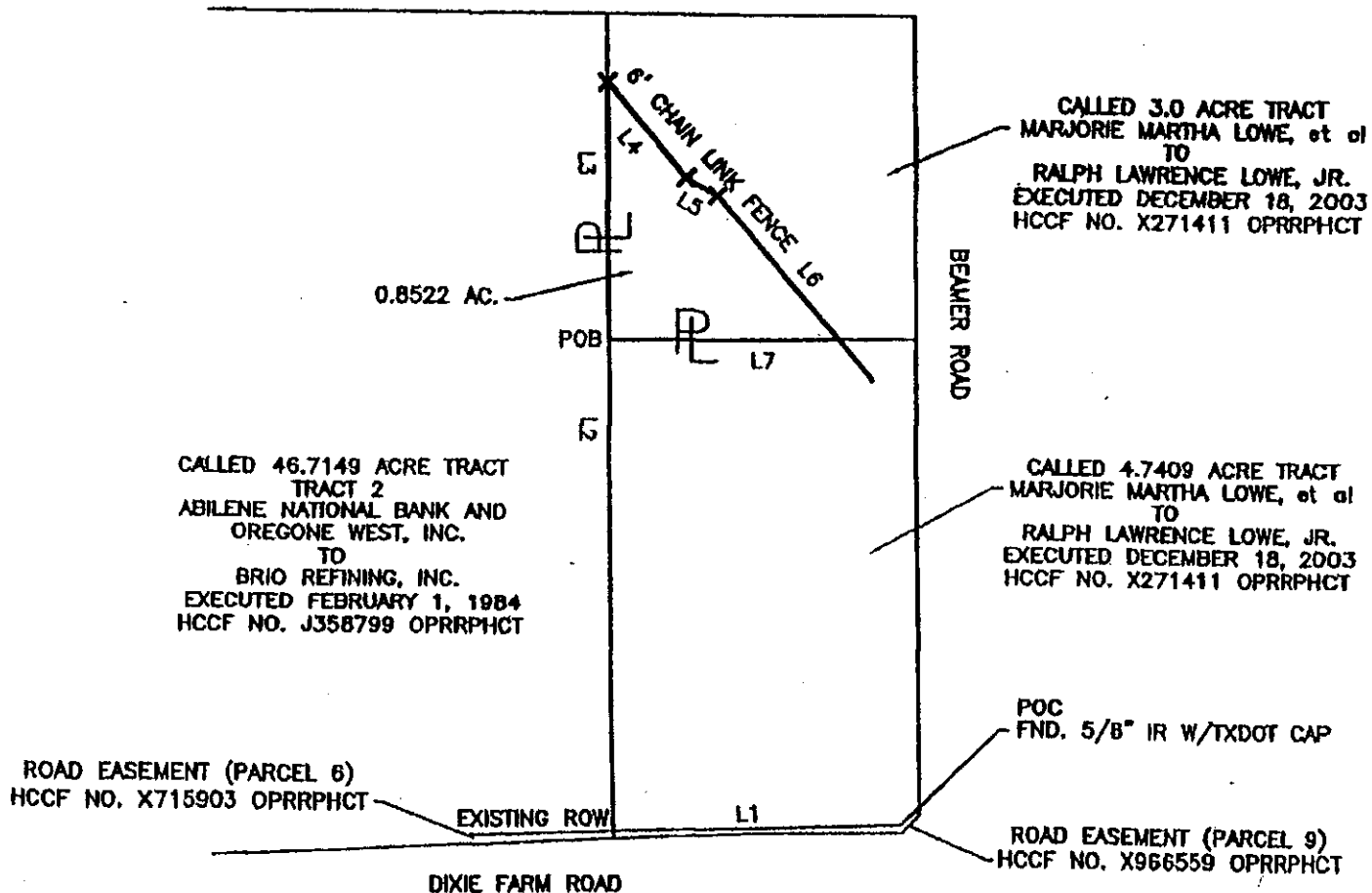
November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434\WP\WMB-DES-0-8522 ACRES



| LINE | DISTANCE | BEARING |
|------|----------|---------------|
| L1 | 318.14' | S 40°23'53" W |
| L2 | 568.25' | N 48°31'03" W |
| L3 | 292.94' | N 48°31'03" W |
| L4 | 138.27' | S 86°39'01" E |
| L5 | 39.34' | N 72°29'50" E |
| L6 | 210.97' | S 87°32'13" E |
| L7 | 251.92' | S 41°28'57" W |

W.D.C. HALL LEAGUE ABSTRACT 23

0 200 400 Feet



NOTES

- 1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1968 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.
- 2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS.
JOB NUMBER 85,044.34

EXHIBIT

0.8522 OF ONE ACRE
37,121 SQ. FT.

BEING OUT OF
A CALLED 3.0 ACRE TRACT
IN THE

W.D.C. HALL LEAGUE, A-23
HARRIS COUNTY, TEXAS

| | |
|--|---------------------|
| BASELINE CORPORATION PROFESSIONAL SURVEYORS 1708 BLANCKT STREET, SUITE 200, HOUSTON, TEXAS 77006 PHONE (713) 889-8134 FAX (713) 889-1841 | |
| Scale : 1" = 200' | Job No. : 85,044.34 |
| Date : 11/11/2004 | FB No. : X-405 |
| Drawn by : CKT | Approved by : JPC |

TRACT 4 OF 5

**FIELD NOTES
Of A Survey Of**

A tract or parcel of land containing 0.278 acres of land, more or less, out of the Lowe called 20.00 acre tract, out of Lot 71 of Holdale & Coffman Subdivision of the Perry and Austin League, an addition in Harris County, Texas, according to the map or plat thereof, recorded in Volume 3, Page 6, of the Map Records of Harris County, Texas, and being more particularly described by moles and bounds as follows:

BEGINNING at a 1/2 inch iron rod found for the most Westerly corner of the said Lowe called 20.00 acre tract;

(E) THENCE North 42 deg 05 min 11 sec East, a distance of 104.65 feet to a 1/2 inch iron rod found for corner;

(A) THENCE South 47 deg 54 min 49 sec East, a distance of 115.93 feet to a 1/2 inch iron rod found for corner;

THENCE South 41 deg 44 min 17 sec West, a distance of 103.67 feet to a 1/2 inch iron rod set for corner;

THENCE North 48 deg 23 min 54 sec West, a distance of 116.56 feet to the POINT OF BEGINNING of the herein described tract of land and containing 0.278 acres of land, more or less.



H.T. Weber

TRACT 5 OF 5

**FIELD NOTES
Of A Survey Of**

A tract or parcel of land containing 0.754 acres of land, more or less, out of the Lowe called 20.00 acre tract, out of Lot 71 and 74 of Holdale & Coffman Subdivision of the Perry and Austin League, an addition in Harris County, Texas, according to the map or plat thereof, recorded in Volume 3, Page 6, of the Map Records of Harris County, Texas, and being more particularly described by meter and bounds as follows:

COMMENCING at a 5/8 inch iron rod found for the most Northerly corner of the said Lowe called 20.00 acre tract, said point being in the Southwesterly right-of-way line of Beamer Road (variable width);

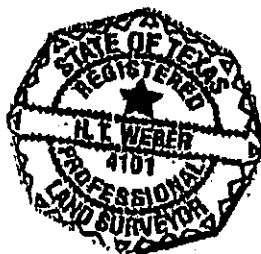
THENCE South 42 deg 05 min 11 sec West, a distance of 427.08 feet to a 1/2 inch iron rod set for the POINT OF BEGINNING of the herein described tract;

THENCE South 56 deg 59 min 32 sec East, a distance of 100.08 feet to a fence post for corner;

THENCE South 39 deg 35 min 50 sec West, a distance of 318.33 feet to a 1/2 inch iron rod set for corner;

(D) THENCE North 47 deg 54 min 45 sec West, a distance of 112.65 feet to a 1/2 inch iron rod found for corner;

THENCE North 42 deg 05 min 11 sec East, a distance of 302.33 feet to the POINT OF BEGINNING of the herein described tract of land and containing 0.754 acres of land, more or less.



H.T. Weber

EXHIBIT B

DESCRIPTION OF BRIO REFINING SUPERFUND SITE

2011-5-10 11:40 AM

Exhibit B

AUS01:378988.5

**BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 1 OF 3**

Being a tract or parcel of land containing 70.1767 acres (3,056,899 square feet), located in the W.D.C Hall League, Abstract No. 23, Harris County, Texas, and being out of a called 46.7149 acre tract (tract 2) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brio Refining, Inc. recorded under Harris County Clerks File (HCCF) No. J358799 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 34.523 acre tract described in deed executed November 20, 1998 from Beamer Road Management Company to State Street Bank and Trust Company of Missouri, N.A. as Trustee of the Brio Site Trust recorded under HCCF No. T396582 of the OPRRPHCT, a called 4.7409 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT, and a called 3.0 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT. Said 70.1767 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a five-eighths inch iron rod with TxDot Aluminum cap, found at the southerly end of the existing cutback at the southwest corner of Dixie Farm Road (width varies) and Beamer Road (100 feet wide) as recorded under HCCF No. X966559 (Parcel 9) of the OPRRPHCT;

THENCE, South 40° 23' 53" West, along the existing northwesterly right-of-way (easement) line of Dixie Farm Road a distance of 320.54 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, North 49° 36' 07" West, departing the existing northwesterly right-of-way line of Dixie Farm Road at a right angle a distance of 1.16 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

North 48° 09' 07" West, 21.74 feet to an angle point;
North 17° 33' 33" East, 122.96 feet to an angle point;
North 11° 23' 57" East, 63.46 feet to an angle point;
North 01° 16' 14" East, 96.73 feet to an angle point;
North 06° 36' 50" West, 59.61 feet to an angle point;
North 27° 28' 33" West, 60.66 feet to an angle point;
North 40° 57' 43" West, 32.44 feet to an angle point;
North 48° 49' 40" West, 191.49 feet to an angle point;
North 75° 26' 06" West, 32.23 feet to an angle point;
North 87° 32' 13" West, 270.07 feet to an angle point;
South 72° 29' 50" West, 39.34 feet to an angle point;
North 86° 39' 01" West, 138.27 feet to an angle point;
North 48° 31' 03" West, 78.40 feet to an angle point;

**BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 2 OF 3**

THENCE, North 05° 02' 42" West, departing said six foot chain link fence a distance of 40.90 feet to a point at the southwest corner of a called 2.736 acre tract described in deed executed September 26, 1997, from Southbend Properties, Inc. to Beamer Road Management Company, recorded under HCCF No. S659057 of the OPRRPACT;

THENCE, North 48° 31' 43" West, along the west property line of said called 2.736 acre tract a distance of 382.66 feet to a point at the intersection with said six foot chain link fence;

THENCE, continuing along the meanders of said six foot chain link fence the following courses;

**South 42° 05' 04" West, 89.35 feet to an angle point;
North 47° 59' 35" West, 59.34 feet to an angle point;
South 42° 11' 07" West, 310.94 feet to an angle point;
South 48° 25' 54" East, 8.97 feet to an angle point;
South 42° 09' 42" West, 467.35 feet to an angle point;
South 42° 05' 37" West, 297.90 feet to an angle point;
South 37° 21' 04" West, 129.93 feet to an angle point;
South 66° 54' 05" West, 10.01 feet to an angle point;
North 63° 21' 22" West, 268.95 feet to an angle point;
South 26° 36' 11" West, 378.18 feet to an angle point;
South 26° 27' 57" West, 285.79 feet to an angle point;
South 25° 52' 09" West, 208.60 feet to an angle point;
South 22° 42' 10" East, 208.14 feet to an angle point;
South 73° 36' 01" East, 178.41 feet to an angle point;
North 85° 44' 59" East, 108.02 feet to an angle point;
South 23° 38' 01" East, 28.43 feet to an angle point;
South 88° 29' 16" East, 30.47 feet to an angle point;
North 88° 10' 58" East, 69.50 feet to an angle point;
South 81° 15' 09" East, 110.66 feet to an angle point;
South 82° 13' 46" East, 189.90 feet to an angle point;
South 82° 35' 38" East, 159.32 feet to an angle point;
South 82° 20' 16" East, 170.02 feet to an angle point;
South 74° 02' 38" East, 140.18 feet to an angle point;
South 76° 58' 43" East, 128.51 feet to an angle point;
South 87° 38' 56" East, 29.35 feet to an angle point;
South 77° 48' 01" East, 173.77 feet to an angle point;
South 50° 43' 24" East, 8.59 feet to an angle point;
North 41° 56' 08" East, 96.21 feet to an angle point;
North 41° 23' 20" East, 349.10 feet to an angle point;
North 40° 18' 15" East, 338.94 feet to an angle point;
North 39° 00' 49" East, 270.04 feet to an angle point;
North 39° 52' 38" East, 415.21 feet to an angle point;**

**BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 3 OF 3**

North 40° 28' 43" East, 23.12 feet to the POINT OF BEGINNING and containing 70.1767 acres (3,056,899 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED 04/01/05: REMOVED CALL FOR 2.736 ACRE TRACT IN PREAMBLE

REVISED 12/10/04: ADDED CALL FOR 2.736 ACRE TRACT

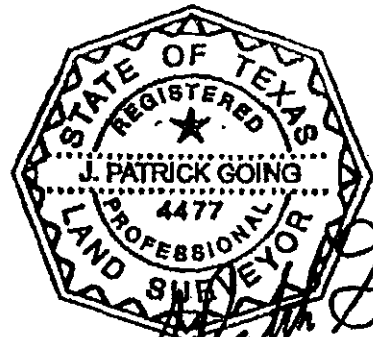
REVISED 11/11/04:

November 5, 2004

Job No. 85.044.34

CKT:bgb

File: BLACAD\8504434\WPM&B-DES-70-1767-ACRES-TRACT-1.DOC



**BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 2**

Being a tract or parcel of land containing 19.7300 acres (859,441 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas to UMB Bank, N.A., Trustee of the Brío Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 20 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271408 of the OPRRPHCT, a called 7.36573 acre tract (tract 1) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brío Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 0.73352 acre tract (tract 1) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 6.55014 acre tract (tract 3) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 0.39904 acre tract (tract 4) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brío Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 1.4463 acre tract described in deed executed December 18, 1979 from Ralph Lowe to Friendswood Refining Corp. recorded under HCCF No. G389139 of the OPRRPHCT, a called 0.278 acre tract and a called 1.196 acre tract described in deed executed August 30, 1978, recorded under HCCF No. F790854 of the OPRRPHCT, as well as that certain called 0.754 acre tract. Said 19.7300 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1988 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 478.27 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, South 47° 55' 00" East, departing the proposed southeasterly right-of-way line of Dixie Farm Road at a right angle a distance of 23.02 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

South 49° 04' 25" East, 181.55 feet to an angle point;
South 48° 51' 58" East, 349.87 feet to an angle point;
South 51° 59' 12" East, 186.08 feet to an angle point;
South 41° 30' 58" West, 178.94 feet to an angle point;
South 41° 39' 01" West, 342.35 feet to an angle point;

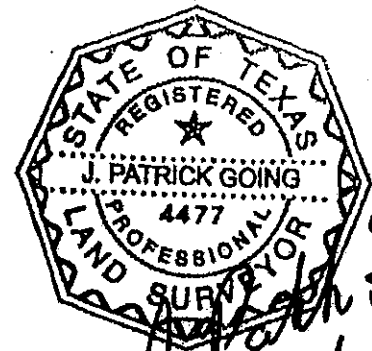
**BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 2 OF 2**

South 41° 36' 37" West, 203.44 feet to an angle point;
South 42° 03' 34" West, 223.47 feet to an angle point;
South 43° 18' 25" West, 289.37 feet to an angle point;
South 86° 15' 07" West, 65.50 feet to an angle point;
South 86° 53' 00" West, 107.38 feet to an angle point;
North 10° 57' 07" West, 28.03 feet to an angle point;
North 43° 53' 17" West, 15.41 feet to an angle point;
North 45° 30' 17" East, 10.60 feet to an angle point;
North 16° 26' 16" West, 27.41 feet to an angle point;
North 18° 07' 29" West, 50.34 feet to an angle point;
North 20° 09' 20" West, 50.64 feet to an angle point;
North 22° 26' 02" West, 50.02 feet to an angle point;
North 27° 09' 14" West, 51.05 feet to an angle point;
North 34° 14' 53" West, 51.08 feet to an angle point;
North 40° 03' 57" West, 50.13 feet to an angle point;
North 45° 54' 05" West, 50.80 feet to an angle point;
North 51° 46' 01" West, 50.59 feet to an angle point;
North 58° 28' 37" West, 60.60 feet to an angle point;
North 62° 47' 53" West, 13.88 feet to an angle point;
North 42° 02' 05" East, 293.66 feet to an angle point;
North 04° 10' 17" West, 76.51 feet to an angle point;
North 39° 53' 20" East, 188.68 feet to an angle point;
North 39° 43' 59" East, 242.49 feet to an angle point;
North 40° 18' 39" East, 189.73 feet to an angle point;

North 41° 39' 21" East, 237.30 feet to the POINT OF BEGINNING and containing 19.7300 acres (859,441 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED: 04/01/05 CHANGED PAGE NUMBER ON PAGE 2
REVISED 12/10/04: ADDED CALL FOR 1.196 ACRE TRACT
REVISED 11/10/04: ADDED 1.4463 ACRE TRACT RECORDING
November 5, 2004
Job No. 85.044.34
CKT:bgb
File: BLACAD\8504434\WPM&B-DES-19-7300-ACRES-TRACT 2



**SAVE AND EXCEPT FROM THE FOREGOING TRACT 2, THE FOLLOWING, WHICH
ARE PART OF THE ADJACENT SITE KNOWN AS THE DOP SUPERFUND SITE:**

A tract out of Lot 67 of a subdivision of 2069 acres land out of the Perry and Austin League and the Thomas Labor, according to the map recorded in Volume 3, page 6, of the Harris County Map Records, and further described as follows:

Commencing at the North corner of Lot 67, said beginning point lying in the centerline of Choate Road, 86-foot right-of-way; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 56.00 feet to the Southeasterly right-of-way line of Choate Road; THENCE S45°00'00"W, along the Southeasterly right-of-way line of Choate Road, a distance of 61.73 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"E, parallel to the Northeast line of Lot 67, a distance of 281.47 feet to a point for corner; THENCE N45°12'50"E, a distance of 61.73 feet to a point for corner in the Northeast line of Lot 67; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 438.22 feet to a point for corner in an existing fence line; THENCE along said fence line with the following meanders; S45°00'14"W, a distance of 100.00 feet; S46°07'54"W, a distance of 300.06 feet; S87°19'06", a distance of 87.64 feet; S88°15'55"W, a distance of 87.54 feet to a point for corner in the Northeast line of drainage easement conveyed to Harris County Flood Control District, said point also being located in a curve of said easement; THENCE in a Northwesterly direction, along said drainage easement, around a curve to the left, having a radius of 483.10 feet, a distance of 104.16 feet to the P.T. for the curve; THENCE N17°17'55"W, a distance of 79.84 feet to the P.C. of curve; THENCE, in a Northwesterly direction, around said curve to the left, having a radius of 483.10 feet, a distance of 423.55 feet to the P.T. of the curve; THENCE N67°31'55", a distance of 26.59 feet to a point for corner, being the intersection of the said drainage easement with the Southeast right-of-way line of Choate Road; THENCE N45°00'00"E, parallel to Northeast line of Lot 67, a distance of 359.69 feet to the place of beginning and containing 6.55014 acres (285,324 square feet) more or less.

Also, a tract of the Southeast 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6, of the Map Records of Harris County, and further described as follows:

Commencing at the North corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE S45°00'00"E, along the Northeast line of Lot 71, a distance of 660 feet to the common lot corners of Lots 74, 75, the Southeast 1/2 of Lot 71, and the Northwest 1/2 of Lot 71; THENCE S45°00'00"W, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 555.35 feet to the place of beginning of the tract hereinafter described;

THENCE from said beginning corner S45°00'00"W, along the Northwest line of the Southeast 1/2 of Lot 71, a distance of 104.65 feet to a point for corner, being the West corner of the Southeast 1/2 of Lot 71; THENCE S45°00'00"E, along the Southwest line of the Southeast 1/2 of Lot 71, a distance of 115.92 feet to a point for corner in an existing fence line; THENCE along said existing fence line N45°99'14"E, a distance of 104.65 feet to a point for corner; THENCE N45°00'00", parallel to the Northeast line of Lot 71, a distance of 115.93 feet to the place of beginning and containing 0.27849 acres, (12,131 square feet) more or less.

Also a tract of Northwest 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6 of the Map Records of Harris County, and further described as follows:

Commencing at the West corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE. S45°00'00"E, along the Southwest line of Lot 71, a distance of 337.70 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner, continuing S45°00'00"E, along the Southwest line of Lot 71, a distance of 322.30 feet to a point for corner being the South corner of the West 1/2 of Lot 71; Thence N45°00'00"E, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 104.65 feet to a point for corner; THENCE N41°34'10"W, a distance of 70.00 feet to a point for corner; THENCE S48°25'50"W, a distance of 17.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 35.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 3.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 6.00 feet to a point for corner, THENCE N48°25'50"E, a distance of 14.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 156.46 feet to a point for corner; THENCE S48°25'50"W, a distance of 79.73 feet to a point for corner; THENCE N40°39'10"W, a distance of 50.53 feet to a point for corner; THENCE S45°12'50"W, a distance of 44.89 feet to the place of beginning and containing 0.73352. acres (31,952 square feet), more or less.

EXHIBIT C

THE BENEFITED PROPERTY

BRIO SUPERFUND SITE
2.1485 ACRES
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 1

Being a tract or parcel of land containing 2.1485 acres (93,588 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas Undivided 1/6th interest to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 2.1485 acre tract being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 630.00 feet to a three-quarter inch iron rod, found for the southwesterly corner of said 9.099 acre tract;

THENCE, South 48° 27' 39" East, departing said existing southeasterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 9.099 acre tract a distance of 24.15 feet to the intersection with a six foot chain link fence and POINT OF BEGINNING of the herein described tract;

THENCE, North 41° 39' 21" East, along said six foot chain link fence a distance of 151.50 feet to an angle point;

THENCE, South 49° 04' 25" East, continuing along said six foot chain link fence a distance of 181.55 feet to an angle point;

THENCE, South 48° 51' 56" East, continuing along said six foot chain link fence a distance of 349.87 feet to an angle point;

THENCE, South 51° 59' 12" East, continuing along said six foot chain link fence a distance of 75.30 feet to the intersection with the southeasterly property line of said 9.099 acre tract;

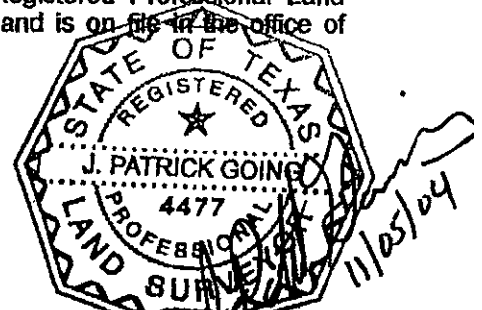
THENCE, South 42° 05' 08" West, along said southeasterly property line of the 9.099 acre tract a distance of 160.55 feet to a five-eighths inch iron rod with "Baseline Corp." cap, found for the southeasterly corner of the 9.099 acre tract;

THENCE, North 48° 27' 39" West, along said southwesterly property line of the 9.099 acre tract a distance of 605.34 feet to the POINT OF BEGINNING and containing 2.1485 acres (93,588 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434WVPM&B-DES-2-1485 ACRES

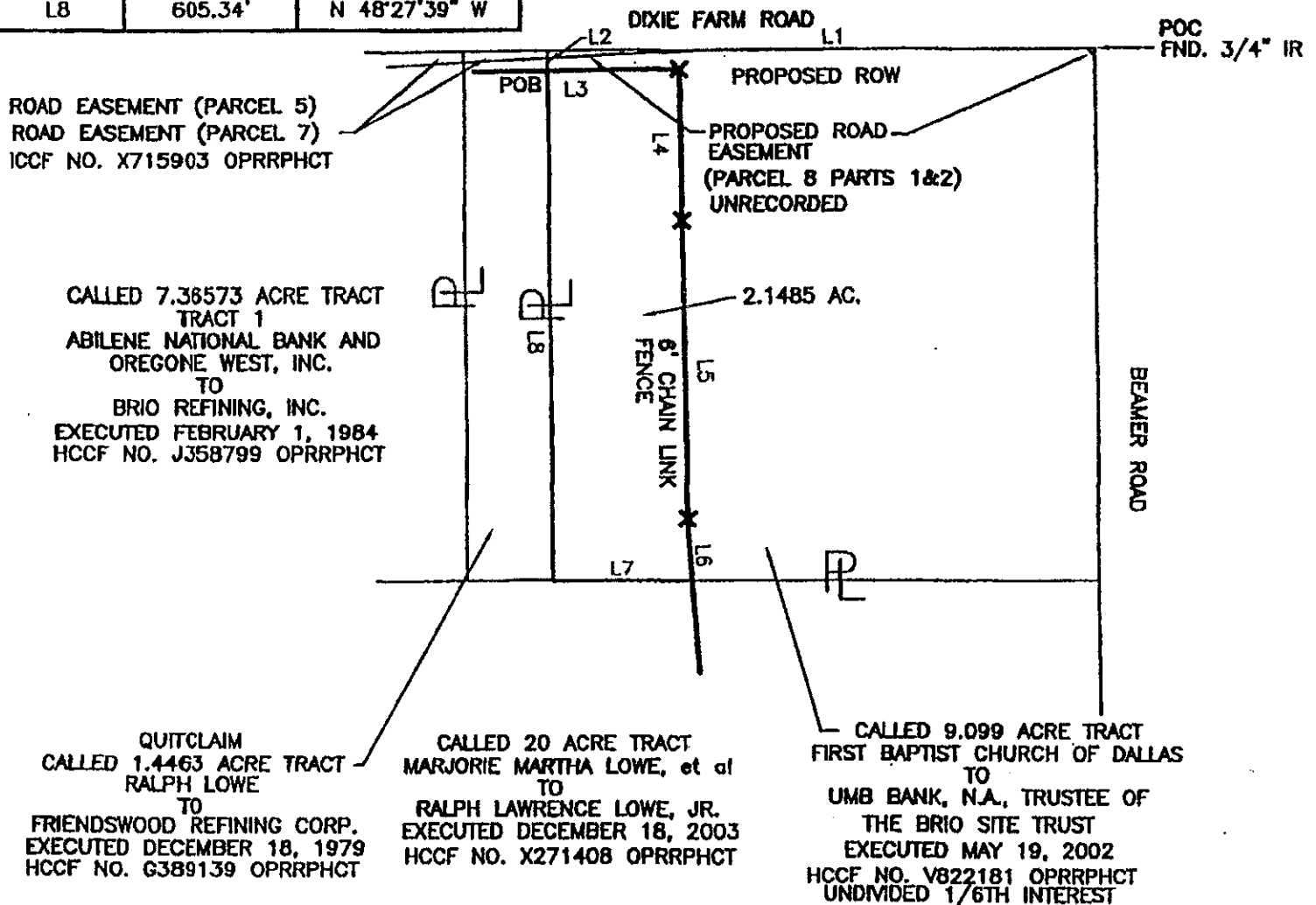
Exhibit C



| LINE | DISTANCE | BEARING |
|------|----------|---------------|
| L1 | 630.00' | S 42°05'00" W |
| L2 | 24.15' | S 48°27'39" E |
| L3 | 151.50' | N 41°39'21" E |
| L4 | 181.55' | S 49°04'25" E |
| L5 | 349.87' | S 48°51'56" E |
| L6 | 75.30' | S 51°59'12" E |
| L7 | 160.55' | S 42°05'08" W |
| L8 | 605.34' | N 48°27'39" W |

PERRY AND AUSTIN LEAGUE ABSTRACT 55

0 200 400 Feet



NOTES

- 1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1968 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.
- 2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS.
JOB NUMBER 85.044.34

Exhibit C

EXHIBIT

2.1485 ACRES
93,588 SQ. FT.

BEING OUT OF

A CALLLED 9.099 ACRE TRACT
IN THE

PERRY AND AUSTIN LEAGUE, A-55
HARRIS COUNTY, TEXAS

| | |
|--|---------------------|
| BASELINE CORPORATION PROFESSIONAL SURVEYORS 1708 BEAMER DRIVE, SUITE 600, HOUSTON, TEXAS 77058 PHONE (713) 666-6166 FAX (713) 666-1544 | |
| Scale : 1" = 200' | Job No. : 85.044.34 |
| Date : 11/12/2004 | FB No. : X-405 |
| Drawn by : CKT | Approved by : JDC |

34.523 ACRES
(1,503,831 SQUARE FEET)

W.D.C. HALL LEAGUE
ABSTRACT NO. 23
Page 1 of 4

State of Texas

County of Harris

Being a tract or parcel of land containing 34.523 acres (1,503,831 square feet), located in the W.D.C. Hall League, Abstract No. 23, Harris County, Texas, and being all of Southbend Section Three, Partial Replat as recorded under Film Code No. 380143 of the Harris County Map Records (HCMR), furthermore being a part of Southbend Section Two, Partial Replat as recorded under Film Code No. 380140 of said HCMR, and all of a certain called 2.736 acre tract of land conveyed by Southbend Properties, Inc. to Beamer Road Management Company by deed executed September 26, 1997 as filed for record under Harris County Clerk's File (HCCF) No. S659057 of the Official Public Records of Real Property of Harris County, Texas (OPRRPHCT). Said 34.523 acre tract being more particularly described by metes and bounds as follows:

All bearings are based upon the southeasterly line of said Partial Replat of Southbend Section Three.

BEGINNING at a 5/8-inch iron rod found for the most easterly corner of said 2.736 acre tract, being on the southwesterly right-of-way line of Beamer Road (100 feet wide), same being on the northwesterly line of a 30 foot wide road easement (unopened) dedicated to the public by the plat of Geo. W. Jenkins Subdivision as recorded in Volume 2, Page 52 of said HCMR;

THENCE, South 45 degrees 27 minutes 27 seconds West, departing the southwesterly right-of-way line of said Beamer Road and along the southeasterly line of said 2.736 acre tract, at a distance of 309.66 feet passing the most southerly corner thereof, and continuing along the southeasterly line of the aforementioned Southbend Section Three, Partial Replat for a total distance of 2423.79 feet to a 5/8-inch iron rod set for corner on the easterly line of Mud Gully (HCFCD Unit A120-00-00, 190 feet wide), dedicated per plat of Sagebend Section Three as recorded in Volume 298 Page 5 of said HCMR;

THENCE, South 82 degrees 50 minutes 32 seconds West, departing said southeasterly line of Southbend Section Three, Partial Replat and along the most easterly line of Mud Gully, same being the most westerly line of said Southbend Section Three, Partial Replat, a distance of 102.98 feet to a 5/8-inch iron rod set for the point of curvature of a curve to the right;

THENCE, in a northwesterly direction continuing along said common line of Mud Gully and Southbend Section Three, Partial Replat, with said curve to the right having a central angle of 75 degrees 52 minutes 54 seconds, a radius of 245.89 feet, a long chord length of 302.37 feet, bearing North 59 degrees 12 minutes 59 seconds West, a distance along the arc of 325.65 feet to a 5/8-inch iron rod found for the point of tangency;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 2 of 4

THENCE, North 21 degrees 16 minutes 29 seconds West, continuing along said common line, a distance of 84.49 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 12 degrees 59 minutes 37 seconds West, continuing along said common line, a distance of 183.20 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 00 degrees 47 minutes 45 seconds West, continuing along said common line, a distance of 75.12 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 18 degrees 38 minutes 50 seconds East, continuing along said common line, a distance of 170.74 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 14 degrees 37 minutes 08 seconds West, continuing along said common line, a distance of 227.76 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 60 degrees 31 minutes 52 seconds West, continuing along said common line of Mud Gully and Southbend, Section Three, Partial Replat, a distance of 82.00 feet to a 5/8-inch iron rod set for corner on the common line between the aforementioned Southbend Section Two Partial Replat and Southbend Section Three Partial Replat;

THENCE, North 32 degrees 16 minutes 12 seconds East, departing said easterly line of Mud Gully and continuing along said common line of Southbend Section Two, Partial Replat, and Southbend Section Three, Partial Replat, a distance of 204.48 feet to a 5/8-inch iron rod set for corner, from which a 1/4-inch iron rod found bears North 22 degrees 07 minutes East, a distance of 0.83 feet;

THENCE, South 60 degrees 01 minutes 13 seconds East, continuing along said common line, a distance of 402.87 feet to a 5/8-inch iron rod set for corner, from which a 1/4-inch iron rod found bears South 87 degrees 22 minutes East, a distance of 0.77 feet;

THENCE, North 29 degrees 58 minutes 47 seconds East, along the northerly line of a storm sewer access easement as shown on the aforementioned Southbend Section Two Partial Replat, a distance of 135.00 feet to a drill hole set in concrete for the point of curvature of a curve to the left;

THENCE, in a northwesterly direction along the northerly line of said storm sewer access easement with said curve to the left having a central angle of 85 degrees 28 minutes 30 seconds, a radius of 10.00 feet, a long chord length of 13.57 feet, bearing North 12 degrees 45 minutes 28 seconds West, and a distance along the arc of 14.92 feet to a drill hole set in concrete for the end of curve;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 3 of 4

THENCE, North 29 degrees 58 minutes 47 seconds East, continuing along the northerly line of said storm sewer access easement, as shown on Southbend Subdivision, Section Two, Partial Replat, a distance of 30.03 feet to a 5/8-inch iron rod set for corner;

THENCE, South 60 degrees 01 minutes 13 seconds East, along the easterly line of said storm sewer access easement, a distance of 178.92 feet to a 5/8-inch iron rod set for corner on the aforementioned common line between Southbend Section Two, Partial Replat and Southbend Section Three, Partial Replat;

THENCE, North 29 degrees 58 minutes 47 seconds East, along said common line, a distance of 64.32 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 859.52 feet to a 5/8-inch iron rod set for corner, from which a 5/8-inch iron rod found bears North 44 degrees 33 minutes East, a distance of 1.30 feet. Said set iron rod being on the westerly line of a certain called 2.750 acre tract as conveyed by Roosevelt Bank to Roosevelt Texas Holding Company, Inc. by deed executed November 10, 1994 as recorded under HCCF No. R157895 of said OPRPHCT, said 2.750 acres is also called Olcott Gas Unit No. 2 Drill Site according to plat recorded under Volume 332, Page 146 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, along the common line of said 2.750 acre tract and the aforementioned Southbend Section Three, Partial Replat, a distance of 110.00 feet to a 5/8-inch iron rod set for corner;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 328.94 feet to a 5/8-inch iron rod set for corner on the northwesterly right-of-way line of South Hill Drive (60 feet wide) as shown on the original plat of Southbend Section Three as recorded in Volume 304, page 64 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, departing the northwesterly right-of-way line of said South Hill Drive, a distance of 60.00 feet to a 5/8-inch iron rod set for corner on the southeasterly right-of-way line of said South Hill Drive, same being the northerly line of said Southbend Section Three, Partial Replat;

THENCE, North 45 degrees 27 minutes 27 seconds East, along the southeasterly right-of-way line of said South Hill Drive, at a distance of 70.36 feet passing the northwesterly corner of the aforementioned 2.736 acre tract and continuing for a total distance of 370.03 feet to a 5/8-inch iron rod found for cut-back corner on the northerly line of the aforementioned 2.736 acre tract;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 4 of 4

THENCE, South 89 degrees 53 minutes 01 seconds East, with said cut-back, a distance of 14.21 feet to a 5/8-inch iron rod found on the southwesterly right-of-way line of Beamer Road (100 feet wide);

THENCE, South 45 degrees 13 minutes 30 second East, along the common line of said Beamer Road and said 2.736 acre tract, a distance of 375.03 feet to the POINT OF BEGINNING and containing 34.523 acres (1,503,831 square feet);

This description is based on a Land Title Survey and Plat by J. Patrick Going, Registered Professional Land Surveyor, License Number 4477, completed April 30, 1998, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.13

April 30, 1998
LRB:hgb
Job No. 85.044.13
File: BLACAD\85044\8504413\WP\M&B-DES



Exhibit C

EXHIBIT D

BRIO SITE TASK FORCE MEMBERS

BP Amoco Chemical Company

Arco Environmental Remediation LLC
for Atlantic Richfield Company

BFI Waste Systems of North America, Inc., as successor to
Browning-Ferris Inc. (Delaware)

Chevron Chemical Company LLC
for Gulf Oil Corporation

Fina Oil and Chemical Company
for Cos-Mar Company

GE Petrochemicals, Inc.
for Borg Warner Petrochemicals, Inc.

GE Petrochemicals, Inc.
for Cos-Mar Company

Hoechst Celanese Corporation
formerly American Hoechst Corporation,
now known as HNA Holdings, Inc.

Huntsman Corp.
for El Paso Products Company

Monsanto Company

Solutia Inc.

Union Carbide Corporation

* * * * *

Exhibit D

EXHIBIT E

KNOWN WASTE CONSTITUENTS LEFT IN PLACE

The following primary constituents, along with other unlisted constituents, are known to be left in place at the Brio Superfund Site:

1. 1, 2 dichloroethane
2. 1, 1, 2 trichloroethane
3. vinyl chloride
4. bis (2-chloroethyl) ether
5. methylene chloride
6. phenanthrene
7. naphthalene
8. flouranthene

For information about the known concentrations of these constituents, refer to Table 1 of the March 31, 1988, Record of Decision for the Brio Refining Site, which is included as Attachment A to the Brio Site Consent Decree.

* * * * *

EXHIBIT F

BRIO SUPERFUND SITE RESTRICTIONS

Except as necessary or appropriate to implement, oversee, operate, maintain and monitor the remedial activities, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the Site, the Site shall not be used for any of the following activities or purposes:

- animal grazing;
- animal husbandry;
- hay or crop production and harvesting;
- any other agricultural or commercial activity;
- installation and operation of any groundwater wells for human or stock watering purposes;
- installation and operation of disposal wells;
- any human habitation or residence, either temporary or permanent;
- recreational, hunting, fishing, hiking, exercising, and athletic activities;
- drilling, mining, seismic exploration, surface construction with the intent to drill or mine, or any other similar surface or subsurface activity;
- blasting or any other use of explosives; or
- any casual pursuit of activity;

and the Site shall only be used for such uses and activities as may be required or permitted pursuant to an Order issued by the Environmental Protection Agency.

* * * * *

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me, and was duly RECORDED in the Official Public Records of Real Property of Harris County Texas on

AUG 30 2005



Beverly L. Kayman
COUNTY CLERK
HARRIS COUNTY TEXAS

RECORDER'S MEMORANDUM
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded

FILED
2005 AUG 30 PM 2:23
COUNTY CLERK
HARRIS COUNTY TEXAS

Annex 3

Defunct Company Property Deed Notice

875-05-1230

HOLD FOR TEXAS AMERICAN TITLE COMPANY

DEED NOTICE

08/30/05 Y730708 200944470

\$46.00

STATE OF TEXAS §
 HARRIS COUNTY §

KNOW ALL BY THESE PRESENTS THAT:

This Deed Notice is hereby filed in the Deed Records of Harris County, Texas to provide information concerning certain environmental conditions and/or use limitations affecting the property of **Brio Refining, Inc., formerly known as Friendswood Refining Corp., and/or the unknown shareholders of Brio Refining, Inc. (the "Record Owner")** in accordance with the Record of Decision ("ROD") issued by the Environmental Protection Agency on March 31, 1988; the Administrative Order on Consent, Docket No. CERCLA VI-13-88, between the Environmental Protection Agency, Region VI, and Brio Refining, Inc., entered in 1988; the Brio Site Consent Decree between the United States and AMOCO Chemical Co, et al., entered on April 4, 1991; the Amended ROD issued by the Environmental Protection Agency on July 2, 1997; and the Brio Refining Site Amended Consent Decree between the United States and AMOCO Chemical Co., et al., entered on March 8, 1999 ("Amended Consent Decree"); and in compliance with the recordation requirements:

I.

This Deed Notice affects the real property described in Exhibit A, attached hereto and made a part hereof (the "Affected Property"). The Affected Property is part of the real property known as the Brio Refining Superfund Site (the "Site"), which is described in Exhibit B attached hereto and made a part hereof.

The Brio Site Task Force (the "BSTF"), consisting of the Settlers to the Amended Consent Decree or their successors-in-interest as described in Exhibit C and made part of this filing, has performed a remediation of the Site, located at 2501 Dixie Farm Road in southern Harris County, Texas, including remediation on the Affected Property. Information about the known waste constituents that have been left in place is provided in Exhibit D attached hereto and made a part hereof. Further information concerning this matter may be found by an examination of the EPA's Brio Refining Superfund Site Administrative Record at EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202, and at the San Jacinto College-South Campus, 13735 Beamer Rd., Houston, Texas, 77089.

The United States Environmental Protection Agency ("EPA") derives its authority to protect the environment and to review the remediation of this Site from Section 101, *et seq.*, of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, and 40 C.F.R. Part 300. In accordance with this authority, EPA requires the owner of the Affected Property, to provide the United States and its representatives access to the Site for the purposes of conducting any activity related to the 1988 ROD. The 1988 ROD recognized that permanent site control, including the imposition of necessary deed notices and restrictions (if possible) and restriction of access to the Site, would be

necessary. The 1997 ROD also required long term, effective site control. Effective site controls for the Brio Site, including the Affected Property, are described in Exhibit D and made a part of this filing.

TCEQ derives its authority to investigate conditions on this Affected Property from Texas Health and Safety Code, § 361.002, which enables TCEQ to promulgate "closure and remediation" standards for hazardous waste sites to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §§ 5.012 and 5.013, Texas Water Code, Annotated, Chapter 5, TCEQ is given primary responsibility for implementing the laws of the State of Texas relating to water and to adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, TCEQ requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation.

This Deed Notice is not a representation or warranty by EPA nor TCEQ of the suitability of this land for any purpose, nor does it constitute any guarantee by EPA or TCEQ that the remediation standards specified herein have been met by the Brio Site Task Force.

II.

Site Cleanup: Contaminants and waste deposited hereon have been remediated to meet nonresidential (i.e., industrial/commercial) soil criteria in accordance with a plan designed to meet the requirements of the 1997 ROD; 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce, to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care or engineering and institutional control measures in accordance with the risk reduction standards applicable at the time of this filing. The Brio Site Task Force will continue to monitor the Site, including the groundwater, according to the procedures and schedule set forth in the February 2004 Maintenance, Operations and Monitoring Plan. Future use of the Affected Property is limited to restricted access, controlled by a fence or similar barrier. Institutional or legal controls placed on the Affected Property and the site to ensure appropriate future use include the Administrative Order on Consent (relating to site access and control), Docket No. CERCLA VI-13-88, between the Environmental Protection Agency, Region VI, and Brio Refining, Inc. entered in 1988, and deed restriction or deed notice prohibiting the uses listed in Exhibit D.

The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the statutory authority of EPA and TCEQ.

III.

Record Owner is the owner of record of the tracts described in Exhibit A, and the address where more specific information may be obtained, is set forth in Section I above.

IV.

This Deed Notice may be rendered of no further force or effect only by a superseding deed notice executed by the EPA or the United States Department of Justice and the TCEQ or their respective successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

EXECUTED this the 23 day of August, 2005.

BRIO SITE TASK FORCE

By: Michael L House

Name: Michael L. House

Title: Project Manager, Brio Site Task Force

STATE OF Missouri §

COUNTY OF St. Charles §

This instrument was acknowledged before me on August, ^{23rd} 2005 by Michael L. House, as Project Manager of the Brio Site Task Force, on behalf of said task force.

Joani M. Madden
Notary Public in and for the State of Missouri
My Commission Expires: 6/29/08

JOANI M. MADDEN
Notary Public - State of Missouri
County of St. Charles
My Commission Expires Jun. 29, 2008

EXHIBIT A

AFFECTED PROPERTY

THE FOLLOWING DESCRIBED FOUR TRACTS:

TRACT 1

DESCRIPTION OF A TRACT OUT OF THE NORTHWEST ONE-HALF OF LOT 71, OF A SUBDIVISION OF 2069 ACRES OF LAND OUT OF THE PERRY AND AUSTIN LEAGUE AND THE THOMAS LABOR, HARRIS COUNTY, TEXAS

ACCORDING TO THE MAP OR PLAT RECORDED IN VOLUME 3, PAGE 6, OF THE MAP RECORDS OF TRAVIS COUNTY, TEXAS

TRACT NO. 1 DESCRIPTION: Commencing at the North corner of Lot 71, said point lying in the centerline of Choate Road, 60 foot right of way; THENCE S45°E, along the Northeast line of Lot 71, a distance of 30 feet to the Southeast right of way line of Choate Road; THENCE S45°00'00"W, along the Southeast right of way line of Choate Road, a distance of 100.00 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"E, parallel to the Northeast line of Lot 71, a distance of 630.00 feet to a point for corner in the Southeast line of the Northwest one-half of Lot 71; THENCE S45°00'00"W, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 455.35 feet to a point for corner; THENCE N41°34'10"W, a distance of 70.00 feet to a point for corner; THENCE S48°25'50"W, a distance of 17.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 35.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 3.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 6.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 14.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 156.46 feet to a point for corner; THENCE S48°25'50"W, a distance of 79.73 feet to a point for corner; THENCE N40°39'10"W, a distance of 50.53 feet to a point for corner; THENCE S45°12'50"W, a distance of 44.89 feet to a point for corner in the Southwest line of Lot 71; THENCE N45°00'00"W, along the Southwest line of Lot 71, a distance of 337.70 feet to a point for corner in the Southeast right of way line of Choate Road; THENCE N45°00'00"E, along the Southeast right of way line of Choate Road, 560.00 feet to the place of beginning and containing 7.36573 acres, (320,851 Sq. feet), more or less.

TRACT 2

DESCRIPTION OF PART OF LOTS 48, 49, 50, 51, 52 AND 53, GEORGE W. JENKINS SUBDIVISION, W.D.C. HALL LEAGUE, HARRIS COUNTY, TEXAS

TRACT NO. 2 DESCRIPTION: Commencing at the West corner of Lot 54; THENCE N45°E, along the Northwest line of Lots 54 and 53 and along the Southeast line of a 30 Foot County Road, a distance of 553.96 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning point continuing N45°E, along the Northwest line of Lots 53, 52, 51, 49 and 48 and along the Southeast line of a 30 Foot County Road, a distance of 2235.09 feet to a point for corner; THENCE S45°00'00"E parallel to the Northeast line of Lot 48,

Exhibit A

a distance of 386.34 feet to a point for corner; THENCE N45°00'00"E, parallel to the Northwest line of Lot 48, a distance of 338.25 feet to a point for corner in the Southwest right of way line of Beamer Road; THENCE S45°00'00"E parallel to the Northeast line of Lot 48 and along the Southwest right of way line of Beamer Road, a distance of 610.53 feet to a point for corner being the point of intersection of the Southwest right of way line of Beamer Road with the Northwest right of way line of Choate Road; THENCE S45°00'00"W, along the Northwest right of way line of Choate Road and parallel to the Southeast line of Lots 48, 49, 50, 51 and 52, at a distance of 592.1 feet cross the common line between Lots 48 and 49, in all, a distance of 1895.2 feet to a point for corner; THENCE in a Westerly direction across Lots 52 and 53 along the centerline of a Drainage Easement from Hard-Lowe Chemical Company to the City of Houston, as per record in Volume 6597, Page 245 of the Deed Records of Harris County, Texas, to the place of beginning and containing 46.7149 acres, more or less.

SAVE AND EXCEPT FROM ABOVE DESCRIBED TRACT NUMBER 2, THE FOLLOWING 4.7409 ACRE TRACT:

DESCRIPTION OF A 4.7409 ACRE TRACT:

Commencing at the North corner of Lot 48; THENCE S45°00'00"W, along the Northwest line of Lot 48, a distance of 10 feet to a point in the Southwest right of way line of Hall Road; THENCE S45°00'00"E, along the Southwest right of way line of Hall Road and parallel to the Northeast line of Lot 48, being 10 feet perpendicular Southwest therefrom, a distance of 386.34 feet to the place of beginning of the tract hereinafter described: THENCE from said beginning point continuing S45°00'00"E, along the Southwest right of way line of Hall Road and parallel to the Northeast line of Lot 48, being 10 feet perpendicular Southwest therefrom, a distance of 610.53 feet to a point for corner in the Northwest right of way line of Dixie Farm Road; THENCE S45°00'00"W, along the Northwest right of way line of Dixie Farm Road and parallel to the Southeast line of Lot 48 being 30 feet perpendicular Northwest therefrom, a distance of 338.25 feet to a point for corner; THENCE N45°00'00"W, parallel to the Northeast line of Lot 48, a distance of 610.53 feet to a point for corner; THENCE N45°00'00"E, parallel to the Northwest line of Lot 48, a distance of 338.25 feet to the place of beginning and containing 4.7409 acres, more or less.

TRACT 3

DESCRIPTION OF A TRACT OUT OF LOT 67, OF A SUBDIVISION OF 2069 ACRES OF LAND OUT OF THE PERRY AND AUSTIN LEAGUE AND THE THOMAS LABOR, HARRIS COUNTY, TEXAS

TRACT NO. 3 DESCRIPTION: Commencing at the North corner of Lot 67, said point lying in the centerline of Choate Road, 60 foot right of way; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 56.00 feet to the place of beginning of the tract hereinafter described, said beginning point also lying in the Southeast right of way line of Choate Road, 60 foot right of way; THENCE from said beginning corner S45°00'00"W, along the Southeast right of way line of Choate Road, a distance of 61.73 feet to a point for corner; THENCE S45°00'00"E, a distance of 281.47 feet to a point for corner; THENCE N45°12'50"E, a distance of 61.73 feet to a point for corner in the Northeast line of Lot 67, THENCE N45°00'00"W, along

Exhibit A

the Northeast line of Lot 67, a distance of 281.70 feet to the place of beginning, containing 0.39904 acre, (17,382 square feet) more or less.

TRACT 4

SURVEY OF A TRACT OUT OF THE NORTHWEST ONE-HALF OF LOT 71, OF A SUBDIVISION OF 2069 ACRES OF LAND OUT OF THE PERRY AND AUSTIN LEAGUE AND THE THOMAS LABOR, HARRIS COUNTY, TEXAS

According to the map or plat recorded in Volume 3, Page 6, of the Map Records of Harris County, Texas.

TRACT NO. 4 DESCRIPTION: Commencing at the North corner of Lot 71, said point lying in the centerline of Dixie Farm Road, 60 foot right of way; THENCE S45°E, along the Northeast line of Lot 71, a distance of 30 feet to the place of beginning of the tract hereinafter described: THENCE from said beginning corner S45°00'00"E, along the Northeast line of Lot 71, a distance of 630.00 feet to a point for corner being the East corner of the Northwest one-half of Lot 71; THENCE S45°00'00"W, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 100.00 feet to a point for corner; THENCE N45°00'00"W, parallel to the Northeast line of Lot 71, a distance of 630.00 feet to a point for corner in the Southeast right of way line of Dixie Farm Road; THENCE N45°00'00"E, along the Southeast right of way line of Dixie Farm Road, 100.00 feet to the place of beginning and containing 1.4463 acres, (63,000 square feet), more or less.

* * * * *

Exhibit A

EXHIBIT B

DESCRIPTION OF SITE

The legal description of the Site, described in two tracts, is presented on the next seven pages.

REF ID: A618731048

BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 1 OF 3

Being a tract or parcel of land containing 70.1767 acres (3,056,899 square feet), located in the W.D.C Hall League, Abstract No. 23, Harris County, Texas, and being out of a called 46.7149 acre tract (tract 2) described in deed executed February 1, 1984 from Abilene National Bank and Oregone West, Inc. to Brio Refining, Inc. recorded under Harris County Clerks File (HCCF) No. J358799 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 34.523 acre tract described in deed executed November 20, 1998 from Beamer Road Management Company to State Street Bank and Trust Company of Missouri, N.A. as Trustee of the Brio Site Trust recorded under HCCF No. T396582 of the OPRRPHCT, a called 4.7409 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT, and a called 3.0 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271411 of the OPRRPHCT. Said 70.1767 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a five-eighths inch iron rod with TxDot Aluminum cap, found at the southerly end of the existing cutback at the southwest corner of Dixie Farm Road (width varies) and Beamer Road (100 feet wide) as recorded under HCCF No. X966559 (Parcel 9) of the OPRRPHCT;

THENCE, South 40° 23' 53" West, along the existing northwesterly right-of-way (easement) line of Dixie Farm Road a distance of 320.54 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, North 49° 36' 07" West, departing the existing northwesterly right-of-way line of Dixie Farm Road at a right angle a distance of 1.16 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

North 48° 09' 07" West, 21.74 feet to an angle point;
North 17° 33' 33" East, 122.96 feet to an angle point;
North 11° 23' 57" East, 63.46 feet to an angle point;
North 01° 16' 14" East, 96.73 feet to an angle point;
North 06° 36' 50" West, 59.61 feet to an angle point;
North 27° 28' 33" West, 60.66 feet to an angle point;
North 40° 57' 43" West, 32.44 feet to an angle point;
North 48° 49' 40" West, 191.49 feet to an angle point;
North 75° 26' 06" West, 32.23 feet to an angle point;
North 87° 32' 13" West, 270.07 feet to an angle point;
South 72° 29' 50" West, 39.34 feet to an angle point;
North 86° 39' 01" West, 138.27 feet to an angle point;
North 48° 31' 03" West, 78.40 feet to an angle point;

BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 2 OF 3

THENCE, North 05° 02' 42" West, departing said six foot chain link fence a distance of 40.90 feet to a point at the southwest corner of a called 2.736 acre tract described in deed executed September 26, 1997, from Southbend Properties, Inc. to Beamer Road Management Company, recorded under HCCF No. S659057 of the OPRRPACT;

THENCE, North 48° 31' 43" West, along the west property line of said called 2.736 acre tract a distance of 382.66 feet to a point at the intersection with said six foot chain link fence;

THENCE, continuing along the meanders of said six foot chain link fence the following courses;

South 42° 05' 04" West, 89.35 feet to an angle point;
North 47° 59' 35" West, 59.34 feet to an angle point;
South 42° 11' 07" West, 310.94 feet to an angle point;
South 48° 25' 54" East, 8.97 feet to an angle point;
South 42° 09' 42" West, 467.35 feet to an angle point;
South 42° 05' 37" West, 297.90 feet to an angle point;
South 37° 21' 04" West, 129.93 feet to an angle point;
South 66° 54' 05" West, 10.01 feet to an angle point;
North 63° 21' 22" West, 268.95 feet to an angle point;
South 26° 36' 11" West, 378.18 feet to an angle point;
South 26° 27' 57" West, 285.79 feet to an angle point;
South 25° 52' 09" West, 208.60 feet to an angle point;
South 22° 42' 10" East, 208.14 feet to an angle point;
South 73° 36' 01" East, 178.41 feet to an angle point;
North 85° 44' 59" East, 108.02 feet to an angle point;
South 23° 38' 01" East, 28.43 feet to an angle point;
South 88° 29' 16" East, 30.47 feet to an angle point;
North 88° 10' 58" East, 69.50 feet to an angle point;
South 81° 15' 09" East, 110.66 feet to an angle point;
South 82° 13' 46" East, 189.90 feet to an angle point;
South 82° 35' 38" East, 159.32 feet to an angle point;
South 82° 20' 16" East, 170.02 feet to an angle point;
South 74° 02' 38" East, 140.18 feet to an angle point;
South 76° 58' 43" East, 128.51 feet to an angle point;
South 87° 38' 56" East, 29.35 feet to an angle point;
South 77° 48' 01" East, 173.77 feet to an angle point;
South 50° 43' 24" East, 8.59 feet to an angle point;
North 41° 56' 08" East, 96.21 feet to an angle point;
North 41° 23' 20" East, 349.10 feet to an angle point;
North 40° 18' 15" East, 338.94 feet to an angle point;
North 39° 00' 49" East, 270.04 feet to an angle point;
North 39° 52' 38" East, 415.21 feet to an angle point;

BRIO SUPERFUND SITE
70.1767 ACRES TRACT 1
W.D.C. HALL LEAGUE A-23
PAGE 3 OF 3

North 40° 26' 43" East, 23.12 feet to the POINT OF BEGINNING and containing 70.1767 acres (3,056,899 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED 04/01/05: REMOVED CALL FOR 2.736 ACRE TRACT IN PREAMBLE

REVISED 12/10/04: ADDED CALL FOR 2.736 ACRE TRACT

REVISED 11/11/04:

November 5, 2004

Job No. 85.044.34

CKT:bgb

File: BLACAD\8504434\WPM&B-DES-70-1767-ACRES-TRACT-1.DOC



**BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 2**

Being a tract or parcel of land containing 19.7300 acres (859,441 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT), a called 20 acre tract described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271408 of the OPRRPHCT, a called 7.36573 acre tract (tract 1) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brio Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 0.73352 acre tract (tract 1) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 6.55014 acre tract (tract 3) described in deed executed December 18, 2003 from Marjorie Martha Lowe, et al to Ralph Lawrence Lowe, Jr. recorded under HCCF No. X271409 of the OPRRPHCT, a called 0.39904 acre tract (tract 4) described in deed executed February 1, 1984 from Abilene National Bank and Oregon West, Inc. to Brio Refining, Inc. recorded under HCCF No. J358799 of the OPRRPHCT, a called 1.4463 acre tract described in deed executed December 18, 1979 from Ralph Lowe to Friendswood Refining Corp. recorded under HCCF No. G389139 of the OPRRPHCT, a called 0.278 acre tract and a called 1.196 acre tract described in deed executed August 30, 1978, recorded under HCCF No. F790654 of the OPRRPHCT, as well as that certain called 0.754 acre tract. Said 19.7300 acre tract is wholly within a six foot chain link fence and being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 478.27 feet to a point being at a right angle to a six foot chain link fence corner;

THENCE, South 47° 55' 00" East, departing the proposed southeasterly right-of-way line of Dixie Farm Road at a right angle a distance of 23.02 feet to a six foot chain link fence corner and POINT OF BEGINNING of the herein described tract;

THENCE, along the meanders of said six foot chain link fence the following courses;

South 49° 04' 25" East, 181.55 feet to an angle point;
South 48° 51' 56" East, 349.87 feet to an angle point;
South 51° 59' 12" East, 186.08 feet to an angle point;
South 41° 30' 58" West, 178.94 feet to an angle point;
South 41° 39' 01" West, 342.35 feet to an angle point;

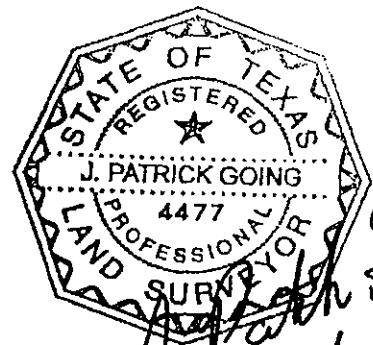
BRIO SUPERFUND SITE
19.7300 ACRES TRACT 2
PERRY AND AUSTIN LEAGUE A-55
PAGE 2 OF 2

South 41° 36' 37" West, 203.44 feet to an angle point;
South 42° 03' 34" West, 223.47 feet to an angle point;
South 43° 16' 25" West, 289.37 feet to an angle point;
South 86° 15' 07" West, 65.50 feet to an angle point;
South 86° 53' 00" West, 107.38 feet to an angle point;
North 10° 57' 07" West, 28.03 feet to an angle point;
North 43° 53' 17" West, 15.41 feet to an angle point;
North 45° 30' 17" East, 10.60 feet to an angle point;
North 16° 26' 16" West, 27.41 feet to an angle point;
North 18° 07' 29" West, 50.34 feet to an angle point;
North 20° 09' 20" West, 50.64 feet to an angle point;
North 22° 26' 02" West, 50.02 feet to an angle point;
North 27° 09' 14" West, 51.05 feet to an angle point;
North 34° 14' 53" West, 51.08 feet to an angle point;
North 40° 03' 57" West, 50.13 feet to an angle point;
North 45° 54' 05" West, 50.80 feet to an angle point;
North 51° 46' 01" West, 50.59 feet to an angle point;
North 58° 28' 37" West, 60.60 feet to an angle point;
North 62° 47' 53" West, 13.88 feet to an angle point;
North 42° 02' 05" East, 293.66 feet to an angle point;
North 04° 10' 17" West, 76.51 feet to an angle point;
North 39° 53' 20" East, 188.68 feet to an angle point;
North 39° 43' 59" East, 242.49 feet to an angle point;
North 40° 18' 39" East, 189.73 feet to an angle point;

North 41° 39' 21" East, 237.30 feet to the POINT OF BEGINNING and containing 19.7300 acres (859,441 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

REVISED: 04/01/05 CHANGED PAGE NUMBER ON PAGE 2
REVISED 12/10/04: ADDED CALL FOR 1.196 ACRE TRACT
REVISED 11/10/04: ADDED 1.4463 ACRE TRACT RECORDING
November 5, 2004
Job No. 85.044.34
CKT: bgb
File: BLACAD\8504434\WPWM&B-DES-19-7300-ACRES-TRACT 2



SAVE AND EXCEPT FROM THE FOREGOING TRACT 2, THE FOLLOWING,
WHICH ARE PART OF THE ADJACENT SITE KNOWN AS THE DOP SUPERFUND SITE:

A tract out of Lot 67 of a subdivision of 2069 acres land out of the Perry and Austin League and the Thomas Labor, according to the map recorded in Volume 3, page 6, of the Harris County Map Records, and further described as follows:

Commencing at the North corner of Lot 67, said beginning point lying in the centerline of Choate Road, 86-foot right-of-way; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 56.00 feet to the Southeasterly right-of-way line of Choate Road; THENCE S45°00'00"W, along the Southeasterly right-of-way line of Choate Road, a distance of 61.73 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"E, parallel to the Northeast line of Lot 67, a distance of 281.47 feet to a point for corner; THENCE N45°12'50"E, a distance of 61.73 feet to a point for corner in the Northeast line of Lot 67; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 438.22 feet to a point for corner in an existing fence line; THENCE along said fence line with the following meanders; S45°00'14"W, a distance of 100.00 feet; S46°07'54"W, a distance of 300.06 feet; S87°19'06", a distance of 87.64 feet; S88°15'55"W, a distance of 87.54 feet to a point for corner in the Northeast line of drainage easement conveyed to Harris County Flood Control District, said point also being located in a curve of said easement; THENCE in a Northwesterly direction, along said drainage easement, around a curve to the left, having a radius of 483.10 feet, a distance of 104.16 feet to the P.T. for the curve; THENCE N17°17'55"W, a distance of 79.84 feet to the P.C. of curve; THENCE, in a Northwesterly direction, around said curve to the left, having a radius of 483.10 feet, a distance of 423.55 feet to the P.T. of the curve; THENCE N67°31'55", a distance of 26.59 feet to a point for corner, being the intersection of the said drainage easement with the Southeast right-of-way line of Choate Road; THENCE N45°00'00"E, parallel to Northeast line of Lot 67, a distance of 359.69 feet to the place of beginning and containing 6.55014 acres (285,324 square feet) more or less.

Also, a tract of the Southeast 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6, of the Map Records of Harris County, and further described as follows:

Commencing at the North corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE S45°00'00"E, along the Northeast line of Lot 71, a distance of 660 feet to the common lot corners of Lots 74, 75, the Southeast 1/2 of Lot 71, and the Northwest 1/2 of Lot 71; THENCE S45°00'00"W, along the Southeast line of the Northwest 1/2 of Lot 71,

Exhibit B

a distance of 555.35 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"W, along the Northwest line of the Southeast 1/2 of Lot 71, a distance of 104.65 feet to a point for corner, being the West corner of the Southeast 1/2 of Lot 71; THENCE S45°00'00"E, along the Southwest line of the Southeast 1/2 of Lot 71, a distance of 115.92 feet to a point for corner in an existing fence line; THENCE along said existing fence line N45°99'14"E, a distance of 104.65 feet to a point for corner; THENCE N45°00'00", parallel to the Northeast line of Lot 71, a distance of 115.93 feet to the place of beginning and containing 0.27849 acres, (12,131 square feet) more or less.

Also a tract of Northwest 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6 of the Map Records of Harris County, and further described as follows:

Commencing at the West corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE S45°00'00"E, along the Southwest line of Lot 71, a distance of 337.70 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner, continuing S45°00'00"E, along the Southwest line of Lot 71, a distance of 322.30 feet to a point for corner being the South corner of the West 1/2 of Lot 71; Thence N45°00'00"E, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 104.65 feet to a point for corner; THENCE N41°34'10"W, a distance of 70.00 feet to a point for corner; THENCE S48°25'50"W, a distance of 17.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 35.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 3.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 6.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 14.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 156.46 feet to a point for corner; THENCE S48°25'50"W, a distance of 79.73 feet to a point for corner; THENCE N40°39'10"W, a distance of 50.53 feet to a point for corner; THENCE S45°12'50"W, a distance of 44.89 feet to the place of beginning and containing 0.73352 acres (31,952 square feet), more or less.

EXHIBIT C

BRIO SITE TASK FORCE MEMBERS

BP Amoco Chemical Company

Arco Environmental Remediation LLC
for Atlantic Richfield Company

BFI Waste Systems of North America, Inc., as successor to
Browning-Ferris Inc. (Delaware)

Chevron Chemical Company LLC
for Gulf Oil Corporation

Fina Oil and Chemical Company
for Cos-Mar Company

GE Petrochemicals, Inc.
for Borg Warner Petrochemicals, Inc.

GE Petrochemicals, Inc.
for Cos-Mar Company

Hoechst Celanese Corporation
formerly American Hoechst Corporation,
now known as HNA Holdings, Inc.

Huntsman Corp.
for El Paso Products Company

Monsanto Company

Solutia Inc.

Union Carbide Corporation

* * * * *

Exhibit C

EXHIBIT D

KNOWN WASTE CONSTITUENTS LEFT IN PLACE

The following primary constituents, along with other unlisted constituents, are known to be left in place at the Brio Superfund Site:

1. 1, 2 dichloroethane
2. 1, 1, 2 trichloroethane
3. vinyl chloride
4. bis (2-chloroethyl) ether
5. methylene chloride
6. phenanthrene
7. naphthalene
8. flouranthene

For information about the known concentrations of these constituents, refer to Table 1 of the March 31, 1988, Record of Decision for the Brio Refining Site, which is included as Attachment A to the Brio Site Consent Decree.

* * * * *

EXHIBIT E

BRIO SUPERFUND SITE RESTRICTIONS

Except as necessary or appropriate to implement, oversee, operate, maintain and monitor the remedial activities, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the Site, the Site shall not be used for any of the following activities or purposes:

- animal grazing;
- animal husbandry;
- hay or crop production and harvesting;
- any other agricultural or commercial activity;
- installation and operation of any groundwater wells for human or stock watering purposes;
- installation and operation of disposal wells;
- any human habitation or residence, either temporary or permanent;
- recreational, hunting, fishing, hiking, exercising, and athletic activities;
- drilling, mining, seismic exploration, surface construction with the intent to drill or mine,
- or any other similar surface or subsurface activity;
- blasting or any other use of explosives; or
- any casual pursuit of activity;

and the Site shall only be used for such uses and activities as may be required or permitted pursuant to an Order issued by the Environmental Protection Agency.

* * * *

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me, and was duly RECORDED in the Official Public Records of Real Property of Harris County Texas on

AUG 30 2005



Cecily B. Kayman
COUNTY CLERK
HARRIS COUNTY TEXAS

RECORDER'S MEMORANDUM:
At the time of recording, this instrument was found to be a photocopy for the best photographic reproduction because of illegibility, carbon or photo copy, textured paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

HARRIS COUNTY TEXAS

2005 AUG 30 PM 2:23

FILED

Annex 4

DOP Deed Restrictions

HOLD FOR TEXAS AMERICAN TITLE COMPANY

GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS

STATE OF TEXAS

§

KNOW ALL BY THESE PRESENTS THAT:

§

§

HARRIS COUNTY

§

THIS GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS is granted by **RALPH LAWRENCE LOWE, JR.** ("Grantor") in favor of **UMB Bank N.A.**, a national banking association, as Trustee for the Brio Site Trust, in its fiduciary and not in its individual capacity ("Grantee"), as the owner of the Benefited Property (hereinafter defined).

RECITALS

A. Grantor is the owner of the real property referred to as the Dixie Oil Processors Superfund Site, being comprised of two tracts of land in Harris County Texas, being that certain real property more particularly described on Exhibit A attached hereto and made a part hereof (the "DOP North Tract") and that certain real property more particularly described on Exhibit B attached hereto and made a part hereof (the "DOP South Tract"). The DOP North Tract and the DOP South Tract are sometimes collectively referred to herein as the "DOP Site."

B. Grantee is the owner of certain real property adjacent to and/or in the vicinity of the DOP Site, which property is more particularly described in Exhibit C attached hereto and made a part hereof (the "Benefited Property").

C. The DOP Site is the subject of a response action under the jurisdiction of the United States Environmental Protection Agency ("EPA") pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9601 *et seq.*, and the National Contingency Plan, 40 C.F.R. § 300.400 *et seq.*

D. Pursuant to section 105 of CERCLA, EPA placed the DOP Site on the National Priorities List, set forth at 40 C.F.R. Part 300, on October 4, 1989.

E. The EPA issued Record of Decision R06-88/032 for the DOP Site on March 31, 1988 (the "1988 ROD").

F. In accordance with the terms of the 1988 ROD and a Unilateral Order dated July 10, 1991, remedial action was conducted at the DOP Site (the "Remedial Action") by those parties listed on Exhibit D attached hereto and made a part hereof or their predecessors or successors-in-interest (the "DOP Settlers").

G. Pursuant to the terms of that certain Consent Decree between the United States and Ralph L. Lowe, the then owner of the DOP Site, entered on December 28, 1992 (the "Lowe Consent Decree"), the owner of the DOP Site agreed to place certain restrictions on the use of the DOP

Site and to grant certain rights of access in order to maintain the integrity and effectiveness of the Remedial Action.

GRANT

NOW, THEREFORE, in consideration of the agreements reached in the Lowe Consent Decree and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, Grantor covenants with the Grantee, EPA and their assigns, that he has the right to convey the easements, rights, obligations, covenants, and restrictions (collectively, the "Deed Restrictions") set forth herein, and Grantor further covenants with Grantee, EPA and their assigns that Grantor, his executors, heirs, successors and assigns will warrant and forever defend the same unto Grantee and its assigns forever against any person whomsoever claiming or to claim the same; and Grantor grants the Deed Restrictions in favor of Grantee and its assigns on the following terms and conditions:

1. Right of Access. Grantor hereby grants Grantee and its assigns a perpetual right of access in, on, upon, over, and through the DOP Site for the purposes of: implementing, overseeing, operating, maintaining, and monitoring the remedial activities relating to the DOP Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP Site.

2. Scope of Restrictions. These Deed Restrictions affect the entire tracts or parcels of real property owned by Grantor as described in Exhibit A attached hereto and made a part hereof (the "DOP North Tract") and Exhibit B attached hereto and made a part hereof (the "DOP South Tract"). The property affected by this Deed Restriction, which is the combination of the DOP North Tract and the DOP South Tract, and collectively constitute the DOP Site is sometimes referred to herein as the "Restricted Property."

3. Information Concerning Site Condition. The grantors of Grantee, which consist of the DOP Settlers, performed a remediation of the Restricted Property and the adjacent Brio Superfund Site. Information about the known waste constituents that have been left in place on the Restricted Property is attached hereto as Exhibit E and is made part of this filing. Further information concerning this matter may be found by an examination of the EPA's Dixie Oil Processors, Inc. Superfund Site Administrative Record at EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202, and at the San Jacinto College-South Campus, 13735 Beamer Rd., Houston, Texas, 77089.

4. EPA Authority. EPA derives its authority to protect the environment and to review the remediation of the DOP Site from Section 101, *et seq.*, of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, and 40 C.F.R. Part 300. In accordance with this authority, EPA requires Grantor, as the owner of the Restricted Property, to provide the United States and its representatives access to the Restricted Property for the purposes of conducting any activity related to the Remedial Action and the Lowe Consent Decree. Under the Lowe Consent Decree, the then owner of the DOP Site, Ralph L. Lowe, agreed to comply with any requirements in the Record of Decision for the DOP Site applicable to owners of any portion of the DOP Site. The

1988 ROD and the Lowe Consent Decree recognized that permanent site control, including the imposition of necessary deed notices and restrictions (if possible) and restriction of access to the DOP Site, would be necessary. The 1988 ROD and the Lowe Consent Decree also required long term, effective site control. Effective controls for the Restricted Property are described in Exhibits F and G attached hereto and made a part hereof.

5. TCEQ Authority. TCEQ derives its authority to investigate conditions on the Restricted Property from Texas Health and Safety Code, § 361.002, which enables TCEQ to promulgate "closure and remediation" standards for hazardous waste sites to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §§ 5.012 and 5.013, Texas Water Code, Annotated, Chapter 5, TCEQ is given primary responsibility for implementing the laws of the State of Texas relating to water and to adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, TCEQ requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation.

6. Effect of Deed Restrictions. These Deed Restrictions do not constitute a representation or warranty by EPA nor TCEQ of the suitability of this land for any purpose, nor do they constitute any guarantee by EPA or TCEQ that the remediation standards specified herein have been met by the DOP Settlers.

7. Restrictions on Use. Contaminants and waste deposited hereon have been remediated to meet nonresidential (i.e., industrial/commercial) soil criteria in accordance with a plan designed to meet the requirements of the 1998 ROD; 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce, to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care or engineering and institutional control measures in accordance with the risk reduction standards applicable at the time of this filing. Future use of the DOP North Tract is limited as described in Exhibit F. Future use of the DOP South Tract is limited as described in Exhibit G. Institutional or legal controls placed on the Restricted Property to ensure appropriate future use include the Lowe Consent Decree and these Deed Restrictions. The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the statutory authority of EPA and TCEQ.

8. Additional Information. The current owner of the Restricted Property is Ralph Lawrence Lowe, Jr. and the address, where more specific information may be obtained is set forth in Section 3 above.

9. Provisions to Run with the Land. These Deed Restrictions set forth rights, liabilities, agreements, and obligations upon and subject to which the Restricted Property, or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements, and obligations herein set forth shall run with the Restricted Property, as applicable thereto, and any portion thereof, and shall inure to the benefit of the Grantee and EPA, as third party beneficiary, and their successors and be binding

upon Grantor and all parties claiming by, through or under Grantor. The rights hereby granted to the Grantee, and its successors and assigns, include the right of Grantee and EPA, as third party beneficiary, to enforce these Deed Restrictions.

10. Grantor Concurrence. Grantor and all parties claiming by, through, or under Grantor covenant and agree with the provisions herein set forth and agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, subcontractors and employees, that the Deed Restrictions herein established shall be adhered to and not violated and that their respective interests in the Restricted Property shall be subject to the provisions herein set forth.

11. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Deed Restriction fully or by reference, into all deeds, easements, mortgages, deeds of trust, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Restricted Property, or any portion thereof, is conveyed. Any transfer of the Restricted Property, or any portion thereof, shall take place only if the grantee agrees, as a part of the agreement to purchase or otherwise obtain an interest in the Property, that it will comply with the obligations of the Grantor to provide access and/or institutional controls, as set forth in these Deed Restrictions, with respect to such Restricted Property.

12. Severability. If any court or other tribunal determines that any provision of these Deed Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from these Deed Restrictions as though it had never been included herein. In either case, the remaining provisions of these Deed Restrictions shall remain in full force and effect.

13. Governing Law. It is expressly agreed that the law of the State of Texas is the law governing these Deed Restrictions and any disputes regarding its contents and interpretation.

14. Binding Effect. The covenants, terms, conditions, and restrictions of these Deed Restrictions shall be binding upon the Grantor and his personal representatives, heirs, successors, and assigns, and shall continue as a servitude running into perpetuity with the Restricted Property.

15. Captions. The captions in this instrument have been inserted solely for convenience of reference and are not part of this instrument and shall have no effect upon construction or interpretation.

16. Notices. Any notice required hereunder shall be in writing and shall be delivered by hand, reputable overnight carrier, or certified mail, return receipt requested as follows:

To Grantor:

Ralph Lawrence Lowe, Jr.
3009 Green Tee
Pearland, Texas 77581

To Grantee:

UMB, N.A., as Trustee for the Brio Site Trust

Corporate Trust Division
Attn: Robert Clasquin
2 South Broadway, Suite 435
St. Louis, MO 63102-1713

with a copy to:

Baker Botts L.L.P.
Attn: Aileen Hooks
98 San Jacinto Blvd., Suite 1500
Austin, Texas 78701-4039

To EPA:

Office of Regional Counsel
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

All notices shall be deemed effective three (3) business days after delivery by the means set forth above. Grantor, Grantee or EPA (or any of their respective successors) may change its address for by written notice to the others (or their respective successors).

EXECUTED this the 19 day of August, 2005.

RALPH LAWRENCE LOWE, JR.

R. Lowe

AGREED:

UMB, N.A., as Trustee for the Brio Site Trust
in its fiduciary and not in its individual capacity

By: *Robert Clasquin*

Name: Robert Clasquin
Title: Vice President

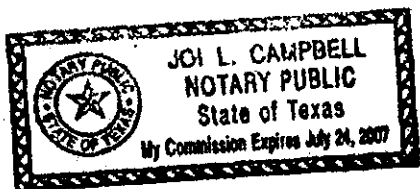
STATE OF TEXAS

§
§
§

COUNTY OF Brazoria

BEFORE ME, on this the 19th day of August, 2005, personally appeared **Ralph Lawrence Lowe, Jr.** whose name is subscribed to the foregoing instrument; and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19th day of August, 2005.



Joi L. Campbell
Notary Public in and for the State of Texas

EXHIBIT A

DOP NORTH TRACT

The legal description of real property owned by Ralph Lawrence Lowe, Jr. and known for purposes of this Deed Restriction as the DOP North Tract is presented as follows:

All of Lot 54 and a portion of Lots 52 and 53 in the George W. Jenkins subdivision, W.D.C. Hall League, according to the plat recorded in Volume 2, page 52, Harris County Map Records, and further described as follows:

Beginning at the West corner of Lot 54; THENCE N45°E along the Northwest line of Lots 54 and 53 and along the Southeast line of a 30-foot county road, a distance of 553.96 feet; THENCE in an Easterly direction across Lots 52 and 53 along the centerline of a drainage easement from Hard-Lowe Chemical Company to the City of Houston, as per record in Volume 6597, page 245, of Harris County records; THENCE S45°W along the Northwest right-of-way line of Choate Road, now known as Dixie Farm Road, to the South corner of Lot 54; THENCE Northwest along the Southwest line of Lot 54, a distance of 1022.65 feet to the point of beginning.

* * * * *

Exhibit A

EXHIBIT B

DOP SOUTH TRACT

The legal description of real property owned by Ralph Lawrence Lowe, Jr. and known for purposes of this Deed Restriction as the DOP South Tract is presented as follows:

A tract out of Lot 67 of a subdivision of 2069 acres land out of the Perry and Austin League and the Thomas Labor, according to the map recorded in Volume 3, page 6, of the Harris County Map Records, and further described as follows:

Commencing at the North corner of Lot 67, said beginning point lying in the centerline of Choate Road, 86-foot right-of-way; THENCE. S45°00'00"E, along the Northeast line of Lot 67, a distance of 56.00 feet to the Southeasterly right-of-way line of Choate Road; THENCE S45°00'00"W, along the Southeasterly right-of-way line of Choate Road, a distance of 61.73 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"E, parallel to the Northeast line of Lot 67, a distance of 281.47 feet to a point for corner; THENCE N45°12'50"E, a distance of 61.73 feet to a point for corner in the Northeast line of Lot 67; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 438.22 feet to a point for corner in an existing fence line; THENCE along said fence line with the following meanders; S45°00'14"W, a distance of 100.00 feet; S46°07'54"W, a distance of 300.06 feet; S87°19'06", a distance of 87.64 feet; S88°15'55"W, a distance of 87.54 feet to a point for corner in the Northeast line of drainage easement conveyed to Harris County Flood Control District, said point also being located in a curve of said easement; THENCE in a Northwesterly direction, along said drainage easement, around a curve to the left, having a radius of 483.10 feet, a distance of 104.16 feet to the P.T. for the curve; THENCE N17°17'55"W, a distance of 79.84 feet to the P.C. of curve; THENCE, in a Northwesterly direction, around said curve to the left, having a radius of 483.10 feet, a distance of 423.55 feet to the P.T. of the curve; THENCE N67°31'55", a distance of 26.59 feet to a point for corner, being the intersection of the said drainage easement with the Southeast right-of-way line of Choate Road; THENCE N45°00'00"E, parallel to Northeast line of Lot 67, a distance of 359.69 feet to the place of beginning and containing 6.55014 acres (285,324 square feet) more or less.

Also a tract of Northwest 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6 of the Map Records of Harris County, and further described as follows:

Commencing at the West corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE. S45°00'00"E, along the Southwest line of Lot 71, a distance of 337.70 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner, continuing S45°00'00"E, along the Southwest line of Lot 71, a distance of 322.30 feet to a

Exhibit B

* * * * *

AUS01:371163.7

EXHIBIT C

THE BENEFITED PROPERTY

BRIO SUPERFUND SITE
2.1485 ACRES
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 1

Being a tract or parcel of land containing 2.1485 acres (93,588 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas Undivided 1/6th interest to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 2.1485 acre tract being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 630.00 feet to a three-quarter inch iron rod, found for the southwesterly corner of said 9.099 acre tract;

THENCE, South 48° 27' 39" East, departing said existing southeasterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 9.099 acre tract a distance of 24.15 feet to the intersection with a six foot chain link fence and POINT OF BEGINNING of the herein described tract;

THENCE, North 41° 39' 21" East, along said six foot chain link fence a distance of 151.50 feet to an angle point;

THENCE, South 49° 04' 25" East, continuing along said six foot chain link fence a distance of 181.55 feet to an angle point;

THENCE, South 48° 51' 56" East, continuing along said six foot chain link fence a distance of 349.87 feet to an angle point;

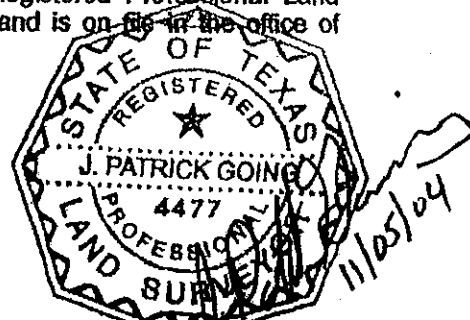
THENCE, South 51° 59' 12" East, continuing along said six foot chain link fence a distance of 75.30 feet to the intersection with the southeasterly property line of said 9.099 acre tract;

THENCE, South 42° 05' 08" West, along said southeasterly property line of the 9.099 acre tract a distance of 180.55 feet to a five-eighths inch iron rod with "Baseline Corp." cap, found for the southeasterly corner of the 9.099 acre tract;

THENCE, North 48° 27' 39" West, along said southwesterly property line of the 9.099 acre tract a distance of 605.34 feet to the POINT OF BEGINNING and containing 2.1485 acres (93,588 square feet) of land.

This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434WPM&B-DES-2-1485 ACRES



| LINE | DISTANCE | BEARING |
|------|----------|---------------|
| L1 | 630.00' | S 42°05'00" W |
| L2 | 24.15' | S 48°27'39" E |
| L3 | 151.50' | N 41°39'21" E |
| L4 | 181.55' | S 49°04'25" E |
| L5 | 349.87' | S 48°51'56" E |
| L6 | 75.30' | S 51°59'12" E |
| L7 | 160.55' | S 42°05'08" W |
| L8 | 605.34' | N 48°27'39" W |

PERRY AND AUSTIN LEAGUE ABSTRACT 55

0 200 400 Feet

ROAD EASEMENT (PARCEL 5)
ROAD EASEMENT (PARCEL 7)
HCCF NO. X715903 OPRRPHCT

CALLED 7.36573 ACRE TRACT
TRACT 1
ABILENE NATIONAL BANK AND
OREGONE WEST, INC.
TO
BRIO REFINING, INC.
EXECUTED FEBRUARY 1, 1984
HCCF NO. J358799 OPRRPHCT

QUITCLAIM
CALLED 1.4463 ACRE TRACT
RALPH LOWE
TO
WENDSWOOD REFINING CORP.
EXECUTED DECEMBER 18, 1979
HCCF NO. G389139 OPRRPHCT

CALLED 20 ACRE TRACT
MARJORIE MARTHA LOWE, et al
TO
RALPH LAWRENCE LOWE, JR.
EXECUTED DECEMBER 18, 2003
HCCF NO. X271408 OPRRPHCT

CALLED 9.099 ACRE TRACT
FIRST BAPTIST CHURCH OF DALLAS
TO
UMB BANK, N.A., TRUSTEE OF
THE BRIO SITE TRUST
EXECUTED MAY 19, 2002
HCCF NO. V822181 OPRRPHCT
UNDIVIDED 1/6TH INTEREST

NOTES

- 1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1968 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.
- 2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS.
JOB NUMBER 85.044.34

EXHIBIT

2.1485 ACRES
93,588 SQ. FT.

BEING OUT OF
A CALLED 9.099 ACRE TRACT
IN THE

PERRY AND AUSTIN LEAGUE, A-55
HARRIS COUNTY, TEXAS

| | |
|--|---------------------|
| BASELINE CORPORATION PROFESSIONAL SURVEYORS 1708 BRANSTED DRIVE, SUITE 400, HOUSTON, TEXAS 77004 PHONE (713) 868-0150 FAX (713) 868-154 | |
| Scale : 1" = 200' | Job No. : 85.044.34 |
| Date : 11/12/2004 | FB No. : X-405 |
| Drawn by : CKT | Approved by : JPG |

**34.523 ACRES
(1,503,831 SQUARE FEET)**

**W.D.C. HALL LEAGUE
ABSTRACT NO. 23
Page 1 of 4**

State of Texas

County of Harris

Being a tract or parcel of land containing 34.523 acres (1,503,831 square feet), located in the W.D.C. Hall League, Abstract No. 23, Harris County, Texas, and being all of Southbend Section Three, Partial Replat as recorded under Film Code No. 380143 of the Harris County Map Records (HCMR), furthermore being a part of Southbend Section Two, Partial Replat as recorded under Film Code No. 380140 of said HCMR, and all of a certain called 2.736 acre tract of land conveyed by Southbend Properties, Inc. to Beamer Road Management Company by deed executed September 26, 1997 as filed for record under Harris County Clerk's File (HCCF) No. 8659057 of the Official Public Records of Real Property of Harris County, Texas (OPRRPHCT). Said 34.523 acre tract being more particularly described by metes and bounds as follows:

All bearings are based upon the southeasterly line of said Partial Replat of Southbend Section Three.

BEGINNING at a 5/8-inch iron rod found for the most easterly corner of said 2.736 acre tract, being on the southwesterly right-of-way line of Beamer Road (100 feet wide), same being on the northwesterly line of a 30 foot wide road easement (unopened) dedicated to the public by the plat of Geo. W. Jenkins Subdivision as recorded in Volume 2, Page 52 of said HCMR;

THENCE, South 45 degrees 27 minutes 27 seconds West, departing the southwesterly right-of-way line of said Beamer Road and along the southeasterly line of said 2.736 acre tract, at a distance of 309.66 feet passing the most southerly corner thereof, and continuing along the southeasterly line of the aforementioned Southbend Section Three, Partial Replat for a total distance of 2423.79 feet to a 5/8-inch iron rod set for corner on the easterly line of Mud Gully (HCFCD Unit A120-00-00, 190 feet wide), dedicated per plat of Sagebend Section Three as recorded in Volume 298 Page 5 of said HCMR;

THENCE, South 82 degrees 50 minutes 32 seconds West, departing said southeasterly line of Southbend Section Three, Partial Replat and along the most easterly line of Mud Gully, same being the most westerly line of said Southbend Section Three, Partial Replat, a distance of 102.98 feet to a 5/8-inch iron rod set for the point of curvature of a curve to the right;

THENCE, in a northwesterly direction continuing along said common line of Mud Gully and Southbend Section Three, Partial Replat, with said curve to the right having a central angle of 75 degrees 52 minutes 54 seconds, a radius of 245.89 feet, a long chord length of 302.37 feet, bearing North 59 degrees 12 minutes 59 seconds West, a distance along the arc of 325.65 feet to a 5/8-inch iron rod found for the point of tangency;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 2 of 4

THENCE, North 21 degrees 16 minutes 29 seconds West, continuing along said common line, a distance of 84.49 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 12 degrees 59 minutes 37 seconds West, continuing along said common line, a distance of 183.20 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 00 degrees 47 minutes 45 seconds West, continuing along said common line, a distance of 75.12 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 18 degrees 38 minutes 50 seconds East, continuing along said common line, a distance of 170.74 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 14 degrees 37 minutes 08 seconds West, continuing along said common line, a distance of 227.76 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 60 degrees 31 minutes 52 seconds West, continuing along said common line of Mud Gully and Southbend, Section Three, Partial Replat, a distance of 82.00 feet to a 5/8-inch iron rod set for corner on the common line between the aforementioned Southbend Section Two Partial Replat and Southbend Section Three Partial Replat;

THENCE, North 32 degrees 16 minutes 12 seconds East, departing said easterly line of Mud Gully and continuing along said common line of Southbend Section Two, Partial Replat, and Southbend Section Three, Partial Replat, a distance of 204.48 feet to a 5/8-inch iron rod set for corner, from which a 1/2-inch iron rod found bears North 22 degrees 07 minutes East, a distance of 0.83 feet;

THENCE, South 60 degrees 01 minutes 13 seconds East, continuing along said common line, a distance of 402.87 feet to a 5/8-inch iron rod set for corner, from which a 1/2-inch iron rod found bears South 87 degrees 22 minutes East, a distance of 0.77 feet;

THENCE, North 29 degrees 58 minutes 47 seconds East, along the northerly line of a storm sewer access easement as shown on the aforementioned Southbend Section Two Partial Replat, a distance of 135.00 feet to a drill hole set in concrete for the point of curvature of a curve to the left;

THENCE, in a northwesterly direction along the northerly line of said storm sewer access easement with said curve to the left having a central angle of 85 degrees 28 minutes 30 seconds, a radius of 10.00 feet, a long chord length of 13.57 feet, bearing North 12 degrees 45 minutes 28 seconds West, and a distance along the arc of 14.92 feet to a drill hole set in concrete for the end of curve;

34.523 ACRES
(1,503,831 SQUARE FEET)

Page 3 of 4

THENCE, North 29 degrees 58 minutes 47 seconds East, continuing along the northerly line of said storm sewer access easement, as shown on Southbend Subdivision, Section Two, Partial Replat, a distance of 30.03 feet to a 5/8-inch iron rod set for corner;

THENCE, South 60 degrees 01 minutes 13 seconds East, along the easterly line of said storm sewer access easement, a distance of 178.92 feet to a 5/8-inch iron rod set for corner on the aforementioned common line between Southbend Section Two, Partial Replat and Southbend Section Three, Partial Replat;

THENCE, North 29 degrees 58 minutes 47 seconds East, along said common line, a distance of 64.32 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 859.52 feet to a 5/8-inch iron rod set for corner, from which a 5/8-inch iron rod found bears North 44 degrees 33 minutes East, a distance of 1.30 feet. Said set iron rod being on the westerly line of a certain called 2.750 acre tract as conveyed by Roosevelt Bank to Roosevelt Texas Holding Company, Inc. by deed executed November 10, 1994 as recorded under HCCF No. R157895 of said OPRRPACT, said 2.750 acres is also called Olcott Gas Unit No. 2 Drill Site according to plat recorded under Volume 332, Page 146 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, along the common line of said 2.750 acre tract and the aforementioned Southbend Section Three, Partial Replat, a distance of 110.00 feet to a 5/8-inch iron rod set for corner;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 328.94 feet to a 5/8-inch iron rod set for corner on the northwesterly right-of-way line of South Hill Drive (60 feet wide) as shown on the original plat of Southbend Section Three as recorded in Volume 304, page 64 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, departing the northwesterly right-of-way line of said South Hill Drive, a distance of 60.00 feet to a 5/8-inch iron rod set for corner on the southeasterly right-of-way line of said South Hill Drive, same being the northerly line of said Southbend Section Three, Partial Replat;

THENCE, North 45 degrees 27 minutes 27 seconds East, along the southeasterly right-of-way line of said South Hill Drive, at a distance of 70.36 feet passing the northwesterly corner of the aforementioned 2.736 acre tract and continuing for a total distance of 370.03 feet to a 5/8-inch iron rod found for cut-back corner on the northerly line of the aforementioned 2.736 acre tract;

**34.523 ACRES
(1,503,831 SQUARE FEET)**

Page 4 of 4

THENCE, South 89 degrees 53 minutes 01 seconds East, with said cut-back, a distance of 14.21 feet to a 5/8-inch iron rod found on the southwesterly right-of-way line of Beamer Road (100 feet wide);

THENCE, South 45 degrees 13 minutes 30 second East, along the common line of said Beamer Road and said 2.736 acre tract, a distance of 375.03 feet to the **POINT OF BEGINNING** and containing 34.523 acres (1,503,831 square feet);

This description is based on a Land Title Survey and Plat by J. Patrick Going, Registered Professional Land Surveyor, License Number 4477, completed April 30, 1998, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.13

April 30, 1998
LRB:sgb
Job No. 85.044.13
File: BLACAD\85044\8504413\WP\M&B-DES



85-044-13

EXHIBIT D

DOP SETTLERS

The Dow Chemical Company

Lyondell Chemical Company
(as successor to ARCO Chemical Company)

Merichem Company

Pharmacia Corporation
(formerly Monsanto Company)

Rohm and Haas Companies

* * * * *

CONFIDENTIAL

EXHIBIT E

KNOWN WASTE CONSTITUENTS LEFT IN PLACE

The following primary constituents, along with other unlisted constituents, are known to be left in place at the Restricted Property:

1. copper
2. ethylbenzene
3. hexachlorobenzene
4. phenanthrene
5. 1, 2 dichloroethane
6. 1, 1, 2 trichloroethane
7. vinyl chloride

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EXHIBIT F

DOP NORTH TRACT SITE RESTRICTIONS

Any use of the DOP North Tract shall strictly adhere to the following restrictions, limitations, and reserved rights:

1. The DOP North Tract shall not be used for any of the following activities or purposes:
 - a. animal grazing;
 - b. animal husbandry;
 - c. hay or crop production and harvesting::
 - d. any other agricultural activity;
 - e. any other commercial activity other than an Approved Limited Use;
 - f. installation and operation of any groundwater wells other than monitoring or recovery wells required in connection with remediation or environmental monitoring activities;
 - g. installation and operation of disposal wells;
 - h. any human habitation or residence, either temporary or permanent;
 - i. recreational, hunting, fishing, hiking, exercising, and athletic activities;
 - j. drilling, mining, seismic exploration, surface construction with the intent to drill or mine,
 - k. or any other similar surface or subsurface activity;
 - l. blasting or any other use of explosives; or
 - m. any casual pursuit of activity other than an Approved Limited Use.
2. Other than an Approved Limited Use that strictly conforms with the requirements below, the DOP North Tract shall only be used for such uses and activities as may be required or permitted pursuant to an Order issued by the United States Environmental Protection Agency ("EPA").
3. The owner of the DOP North Tract shall allow the Grantee, the EPA, and state and local governmental agencies with authority over environmental matters access to DOP North Tract for the purposes of implementing, overseeing, operating, maintaining, and monitoring the remedial

activities relating to the DOP Site and the Brio Superfund Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP North Tract, and such access and actions shall not be deemed to be a violation of these Restrictions.

4. Subject to strict compliance with paragraph 4 through 10 of this Exhibit, the DOP North Tract may be used for a Park 'N Ride Facility for a metropolitan transit authority ("Designated Approved Limited Use") or such other limited commercial or industrial purposes as may be approved by EPA and the Grantee as set forth herein ("Other Approved Limited Uses") (hereinafter "Designated Approved Limited Use" and "Other Approved Limited Uses" are referred to as "Approved Limited Uses"); provided any such limited use shall not disturb the integrity or the stability of the remedy for the DOP Site and the Brio Superfund Site, disturb the integrity of or impair access by the Grantee, its agents, or any governmental agency to any hazardous waste containment or monitoring system located on or adjacent to the DOP North Tract, or otherwise damage any monitoring well or security for any monitoring well (e.g., locking covers and protective posts) located on the DOP Site.

5. The surface of that portion of the DOP North Tract to be used for an Approved Limited Use must be paved and the installation of any such paving must be performed without excavating existing soils at the DOP North Tract, it being understood that any site leveling required in connection with such paving shall be accomplished by bringing clean fill material to the site. No utilities, pipelines, or appurtenances that penetrate the soil cover at the DOP Site may be installed except in strict accordance with a detailed plan approved in writing by the EPA, which plan must include worker protection measures to be put in place, provide for proper characterization and disposal of any materials generated as a result of such activity, and include measures to avoid compromising the existing soil cover for the DOP North Tract.

6. The owner of the DOP North Tract must notify and obtain written approval from the Grantee and the EPA of any proposed Approved Limited Use other than a Designated Approved Limited Use. The review by the EPA and the Grantee shall be limited to a consideration of whether the proposed use would be inconsistent with the intent and purpose of these Deed Restrictions. In no event shall any of the following be considered an Approved Limited Use: Day care facilities, hospitals or health care facilities, schools, bus stops for school children, parks or other recreational facilities, restaurants or retail establishments, churches or other places of worship, agricultural or horticultural uses, office uses, warehouse uses, fuel storage or fueling facility uses, solid or hazardous waste treatment, storage or disposal facilities or any facility at which the same person would be expected to be present at the site for any extended period of time on a regular basis. A person's temporary presence at the DOP North Tract during the course of normal transit shall not be considered an "extended period of time."

7. The owner of the DOP North Tract shall provide to the Grantee and the EPA copies of any and all engineering and construction drawings, plans and specifications relating to any Approved Limited Use (the "Plans"), including any modifications to any Approved Limited Use, at least 45 days' prior to taking any action to implement the Plans. The owner of the DOP North Tract shall not conduct or suffer or allow any person to conduct any activity that disturbs the soil at the DOP North Tract without first submitting a Plan for such activity to Grantee and the EPA and receiving EPA's written approval of the Plan. Grantee shall have the right, but not the

obligation, to review and provide comments on each Plan. EPA, and the Grantee if it chooses to comment, shall provide written comments on a Plan within 30 days of receipt of the Plan. EPA, and, if applicable, Grantee will review each Plan for the limited purpose of evaluating whether implementation of the Plan could adversely impact the remedy for the DOP Site or the Brio Superfund Site or otherwise conflict with these Deed Restrictions, and may consider, among other things, the possible impact of implementation of the Plan on the subsurface of the DOP Site, the cover for any contamination left in place, any containment or monitoring system on the DOP Site or the Brio Superfund Site, or any other potential adverse impact on the remedy. The owner of the DOP North Tract shall address, or cause to be addressed, comments on a Plan made by EPA and Grantee, if applicable, to the satisfaction of EPA and Grantee, and the owner shall conduct all construction activity and site work related to an Approved Limited Use strictly in accordance with the Plan, as approved by EPA.

8. The owner shall allow the EPA and/or the Grantee to observe any activities relating to the construction, maintenance, or use of any improvements at the DOP North Tract. The EPA or Grantee may object to and order immediate cessation of the activity if, in its sole judgment, it determines that the activity violates these Restrictions.

9. The owner of the DOP North Tract, at its sole cost and expense, shall arrange for the characterization and proper disposal of any wastes generated in connection with any Approved Limited Use, including related construction activities, in accordance with all applicable laws.

10. Failure of Grantor, its successors or assigns to strictly adhere to the foregoing procedures and requirements relating to Approved Limited Uses shall be grounds for the Grantee or EPA to require that the Grantor or then owner of the DOP North Tract immediately cease or take such actions as are needed to cease such use and/or modify or remove any improvements (including any buildings, structures, roads, driveways, and paved parking areas and appurtenances) placed on the DOP North Tract in violation of the Restrictions. Violation of these Restrictions shall be grounds for the Grantee or the EPA to obtain injunctive relief and to file such other causes of action as allowed by law.

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EXHIBIT G

DOP SOUTH TRACT SITE RESTRICTIONS

Except as necessary or appropriate to implement, oversee, operate, maintain and monitor the remedial activities, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP Site or the Brio Superfund Site, the DOP South Tract shall not be used for any of the following activities or purposes:

- a. animal grazing;
- b. animal husbandry;
- c. hay or crop production and harvesting::
- d. any other agricultural activity;
- e. any other commercial activity other than an Approved Limited Use;
- f. installation and operation of any groundwater wells other than monitoring or recovery wells required in connection with remediation or environmental monitoring activities;
- g. installation and operation of disposal wells;
- h. any human habitation or residence, either temporary or permanent;
- i. recreational, hunting, fishing, hiking, exercising, and athletic activities;
- j. drilling, mining, seismic exploration, surface construction with the intent to drill or mine,
- k. or any other similar surface or subsurface activity;
- l. blasting or any other use of explosives; or
- m. any casual pursuit of activity;

and the DOP South Tract shall only be used for such uses and activities as may be required or permitted pursuant to an order issued by the EPA.

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ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED in the Official Public Records of Real Property of Harris County Texas on

AUG 30 2005



Barclay B. Kaufman
COUNTY CLERK